FOR THE RADIO LISTENER

short wave magazine

ISSN 0037 - 4261

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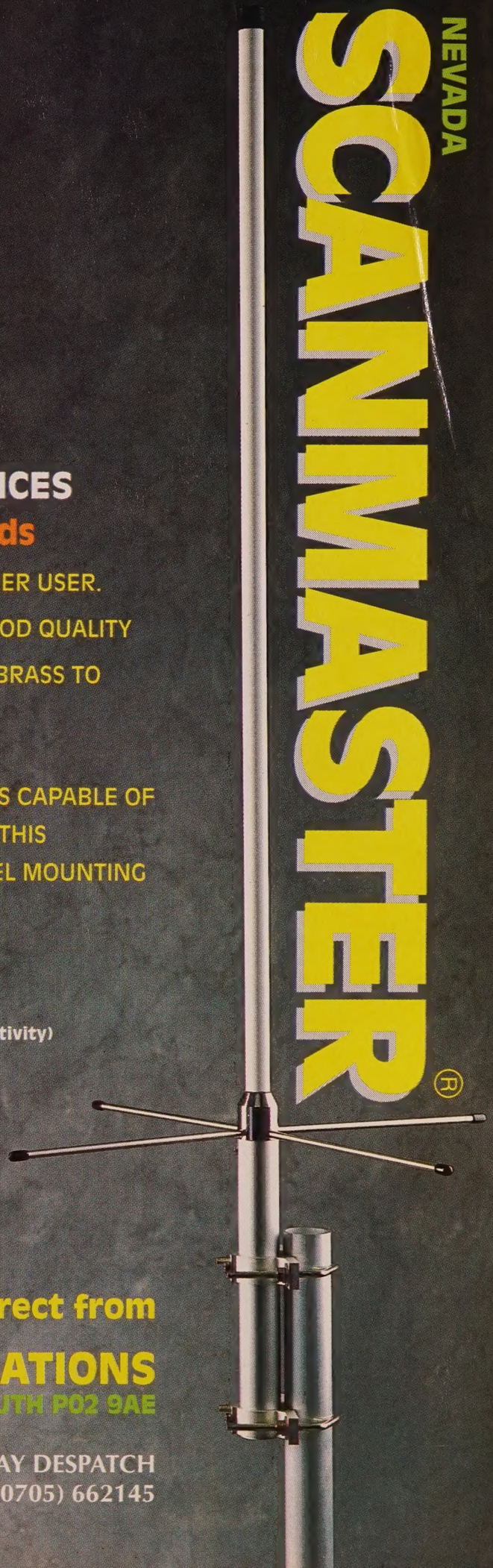

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short wave magazine

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ON SALE AUGUST 21

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...GOOD LISTENING

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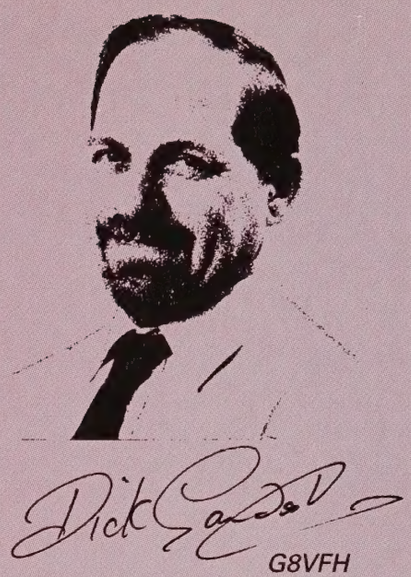
editorial



G8VFH

Peter Rouse has raised a valid point in his column this month. It is unfair to expect, as a right, a columnist to to carry out extensive research on your behalf. None of them have unlimited time - many have full-time jobs - and what they get for compiling their columns will not make them rich overnight - if at all.

By all means write to them with problems related to their column's topic - they all appreciate your letters and questions, which help to bring the column alive - but you should not *expect* a personal reply.

SWM SERVICES

Subscriptions

Subscriptions are available at £21 per annum to UK addresses £23 in Europe and £25 overseas. Subscription copies are despatched by Accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £36 (UK) £39 (Europe) and £41 (rest of world).

Components for SWM Projects

In general all components used in constructing *SWM* projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article.

The printed circuit boards for *SWM* projects are available from the *SWM* PCB Service.

Back Numbers and Binders

Limited stocks of most issues of *SWM* for the past five years are available at £1.80 each including P&P to addresses at home and overseas (by surface mail).

Binders, each taking one volume of the new style *SWM*, are available price £5.50 plus £1 P&P for one binder, £2 P&P for two or more, UK or overseas. Please state the year and volume number for which the binder is required. Prices include VAT where appropriate.

Orders for p.c.b.s, back numbers, binders and items from our Book Service should be sent to **PW Publishing Ltd., FREEPOST, Post Sales Department, Enefco House, The Quay, Poole, Dorset BH15 1PP**, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in sterling.

Credit card orders (Access, Mastercard, Eurocard or Visa) are also welcome by telephone to Poole (0202) 665524. An answering machine will accept your order out of office hours.

letters

Dear Sir

Regarding the letter on the phonetic alphabet in the August SWM. Mr Thompson describes himself as 'an old s.w.l. of many years' and goes on to quote some fancy phonetic alphabet, the likes of which I have neither seen nor heard of before - maybe I missed something somewhere along the line!

If he really has been around for as long as he would have us believe, he should not need me to remind him of one or two facts:

Prior to the '39-'45 war, TELEGRAPHY, not telephony, was the main method used in international radio telecommunications. The necessity for a standard phonetic alphabet I don't think had been given very much thought. In fact, no mention is made of any phonetic alphabet in the *International Code of Signals 1931 Volume II (radio)*. The first mention of an alphabet appears in the Postmaster General's *Handbook for Wireless Operators* (1937 print), from which I quote:

A	Amsterdam
B	Baltimore
C	Casablanca
D	Danemark
E	Edison
F	Florida
G	Gallipoli
H	Havana
I	Italia
J	Jerusalem
K	Kilogramme
L	Liverpool
M	Madagascar
N	New York
O	Oslo
P	Paris
Q	Quebec
R	Roma
S	Santiago
T	Tripoli
U	Upsala
V	Valencia
W	Washington
X	Xanthippe
Y	Yokohama
Z	Zurich

A book entitled *Wireless Transmission for Amateurs* edited by a gentleman by the name of F.J. Camm (who, of course, J.A. Thompson will surely have heard of) and published by George Newnes Ltd in 1938 listed the same alphabet for use by amateurs. I say same, although there were one or two minor differences - Danemark became Denmark, Italia became Italy and Kilogramme appeared as kilogram. Who knows, some amateurs might have even used the alphabet in those days, after all, people were more likely to obey the rules them. In the 1990s however, many amateurs are a law unto themselves and don't use any form of recognisable procedure, let alone a standard phonetic alphabet.

At the same time, the armed services were playing around with an alphabet which went: A - ACK, B - BEER, etc. I have forgotten most of them but others included T - TOC and P - PETER. This alphabet left us with one or two terms still in use today: ACK ACK (AA) for anti-aircraft gunfire, TOC H for Talbot House (not many ex-service personnel will have forgotten that organisation) and, of course, Blue PETER. No, not the TV kind - the International Code of Signals flag hoisted on all vessels when ready to proceed to sea.

The phonetic alphabet used throughout the '39-'45 war and into the early 1950s was the ABLE, BAKER, CHARLIE, DOG, EASY, FOX, GEORGE, HOW, ITEM, JIG variant.

Around 1951-52 the present phonetic alphabet came into use. It has been universally accepted. It is used by all colours and creeds. It is understood by all. It works (very well). J.A.T. is the only one I've heard condemn it but I'm afraid he is stuck with it and the fact that he does not approve matters little.

H. Deaville
Stockport

IF YOU HAVE ANY POINTS OF VIEW THAT YOU WANT TO AIR PLEASE WRITE TO THE EDITOR. IF YOUR LETTER IS USED YOU WILL RECEIVE A £5 VOUCHER TO SPEND ON ANY *SWM* SERVICE.

The Editor reserves the right to shorten any letters for publication but will try not to alter their sense. Letters must be original and not have been submitted to other magazines. The views expressed in letters published in this magazine are not necessarily those of *Short Wave Magazine.*

letters

Dear Sir
I would like to thank Datong for their commendable service. Approximately nine months ago I ordered an update kit to convert their audio filter FL2 to an FL3, which arrived practically by return post. In the process of changing the various parts I broke the spindle of the right hand potentiometer as I couldn't figure how to get the knob off. So I rang Datong and told them what had happened, within a few days I had the new piece. Unfortunately, they had sent me the wrong part, so I rang again and within a few days I had the right piece, which I must say was sent free of charge. Once again I would like to thank Datong for their good service. I have dealt with various companies in the UK with regards to s.w.l. equipment with which most of them I have had pleasurable business, but some I have had a very poor response.
Alan Croft
Belgium

Dear Sir
Around 1950 I purchased from Woolworths a very effective gadget called an 'aerial eliminator' which was sausage shaped. From one end a red wire protruded and was connected to the aerial socket of the set and its companion a black wire went to the earth socket. A single black wire from the other end of the eliminator was connected to a mains water pipe. It worked very well indeed on my old Solwell on the s.w. bands and earned me a QSL card from Radio SCAC in Colombia. In due course, it was retired and on dissection I was left with lumps of black pitch, cardboard, the wires and little else. Can anyone enlighten me as to what made it work?
W.W. Croxford, Sidcup
Anyone else had experiences like this, with fond memories of old gadgets? - Ed

Dear Sir
I purchased a Tandy PRO2024 home-base from Radio Shack, which advertises in *SWM*. I am really pleased with its performance.

I have even compared it with a friend's 2006 home-base and in my opinion there is no comparison, mine brings in a lot more stations.

You can keep later models and for the price it is well worth it, and reader wanting a reasonable priced home-base, they won't go far wrong with this model even if they think it's outdated.
M.P., Tewkesbury

Dear Sir
As a regular reader I have followed with interest the letters on s.w.l. QSLing with UK amateur stations since Dec 1990 when I started sending reports. Out of 260 in total, I have received back 221 QSL cards. A very good percentage of those included a very nice letter and a 'phone number through which I have made new friends all over the UK. Which is what this great hobby is all about. I know I speak for a lot of s.w.l.s, UK amateurs give yourself a pat on the back.
H. Wood, Manchester

Dear Sir
I have been a s.w.l. for many years and occasionally have spurts of interest in v.h.f. airband listening. Until recently, my listening to v.h.f. was done on a WIN108 receiver which I was pretty happy with. I work in the Meteorological Office at Wellington Airport which is one of three international airports here in NZ. However, after reading the review a few months ago on the Yupiteru VT-225, I traded the WIN108 and I must comment on the 225's performance.

It is superb to say the least. I live some 40km from Wellington Airport in a hilly situation in so much as I am surrounded by them and use a half wave vertical folded dipole fed with coaxial cable. The dipole is about 10m off the roof and the results are just great (I cut the dipole to 120MHz). The local tower booms in on 118.8MHz - my best so far is a Qantas 767 some 279nm distant inbound from Australia at FL350...and there was a hill in the way!

A superb receiver for anyone keen on the airband. I also monitor h.f. oceanic frequencies and at this time of year the North Atlantic traffic is received well about out dinner time 5pm (0500UTC) on the 5MHz band. So is RAF VOLMET at West Drayton on 11.200MHz - it is audible for most of the day (2200-0600UTC).

Does anyone have any success with South Pacific h.f. in the UK? I would be pleased to correspond with anyone with similar interests. My h.f. gear is all Drake, R7A plus R8 plus various long wires.
Steve Rawdon
New Zealand

Dear Sir
I first became interested in short wave listening last year and now I am completely hooked.

My Philips D2935 with 25m long wire and a.t.u. has supplied me with many happy hours of enjoyment while I fish the air waves to see that station I can catch. The only problem is that with so much to listen to from broadcast stations, utilities and amateurs I could happily be twiddling the dial all day long!

I now await the postman with glee to see if any QSL cards have arrived. My only regret is that I never became an s.w.l. years ago.
Derek Mellor
Cheltenham

Dear Sir
Between the 15th and 21st March, I found myself on Fuereventura, Canary Islands with a Sony SW7600 - the one that comes with a safe-crackers degree for tuning u.s.b./l.s.b. - at sea level, with the standard telescopic antenna. Had I had an S-meter, 5/9 plus 20 might have been quoted in most cases.

15/3/92

0653	7.075MHz	VE2ZP/GM3DAP
0720	14.150MHz	VP5EN/EA3FAH
0730	14.150MHz	WA0NEV/EA3FAH
0732	14.150MHz	VK7BB/WA0NEV
0739	14.190MHz	WB6UAN/TK5DF
0939	21.265MHz	PY2DLLY/HL0B

16/3/92

0010	14.130MHz	C6ARC/FD1PSI
0854	18.115MHz	GW0JGJ/ZL4DJ
1713	21.355MHz	9J2VA/G0PRB
1720	21.340MHz	OE3SGU/KC4DIA
1853	18.105MHz	GW4VFS/MM/PA3EKK

GW4VFS is a radio officer on a Banana vessel, which at the time was bound from Surinam to Portsmouth!

This was just a selection of amateurs, not to mention the 'yachting net' on 14.302MHz at 1800Z each day, with yachts scattered all over the Med., Bay of Biscay and the 'old duck pond', and the Atlantic air traffic, Miami, Gander and Shannon coming through superbly!
After this experience, I'll just going to stop worrying about antennas!
J.A. Gray
Poulton-le-Fylde

Dear Sir
Mr scanner is a Uniden Bearcat 200XLT, which I purchased in June of last year. I was very pleased with it! I am always busy jotting down new frequencies, and to my wife's dismay, never turning it off!

The reason I've written to you is to give my opinion to people who are going to buy a scanner for the first time. I advise them to make sure that it has an a.m./f.m. switch on it. It is very frustrating only being able to listen to a.m. frequencies on f.m.

Luckily, thanks to your magazine I have been able to convert my scanner to a.m. using a switch that I assembled on the back. I listen to more scanning now than before, if that's possible!

My wife says that my scanner is like competing with another woman in the same house! It drives her mad!
I.K. Gellard
East Tilbury

junior listener

Jon Jones
PO Box 59
Fishponds
Bristol BS16 4LH

Making Radio

Are you interested in how radio works? Perhaps you think you'd like to work in the radio industry? Maybe you just want to know a bit more about how broadcasts are made. Well, I've recently received a really interesting book and cassette from the BBC World Service which answers these questions and a whole lot more. It could be an ideal birthday or Christmas present if you haven't got enough paper-round money saved up!

Making Radio is for budding broadcasters, as well as anyone interested in the behind-the-scenes world of radio.

The book starts right at the beginning, "Radio at its most basic is one person talking to another. What gets the sound from the speaker to the listener?". What follows is chapters on subjects such as acoustics and studios, microphones, the sound desk, tapes, interviewing, writing for radio, music, scripts and so one. What struck me about the book is how simply everything is written. That doesn't mean that it's trivial, just easy to understand.

There is also a tape that goes with the book with 45 minutes more of information on it. I enjoyed the tape as it was done in a very friendly and clever way. The two presenters take you through all kinds of technical information and you don't even realise it! The sound effects quiz was good too - it might get used at a Christmas party yet!

The whole package costs £14.99, but if you just want the book it's £9.95. You should be able to get the book from good bookshops, alternatively you can buy it from the BBC World Service Shop, Bush Arcade, Bush House, Strand, London WC2B 4PH.

Experimenters now at 14

In Ireland, The Department of Communications has announced that it will now accept applications for Experimenter Licences for those aged 14 years and upwards who have passed the theory and c.w. exam. This brings Ireland into line with most European countries. The IRTS made the request to reduce the minimum age from 16 to 14 at the 1990 delegation meeting with the Department. Good news for junior listeners in Ireland.

The Novice Licence

There are two types of Novice Licence, the Amateur Radio (Novice) Licence Class (A) and the Amateur Radio (Novice) Licence Class (B). Class A Novices can use all the amateur frequency bands allocated to Novices, including some bands below 30MHz. Class B Novices have access to all the frequencies allocated to novices above 30MHz. Both types of licence allow a maximum power of 3 watts r.f. output.

To get a B Licence you have to successfully complete a practical training course and pass an examination. The courses are run by the RSGB and the exam by the City and Guilds (just like the ordinary RAE exam). The only difference for the A Licence is you have to pass a 5 words per minute Morse test, these are also done by the RSGB.

The training course is obviously the first thing you need to do. The RSGB have arranged for these courses to be run all over the country. The aim of the course is to give the novice the basic skills you need to be a good radio amateur. You'll be taught how to operate a station, a bit about radio theory and gain some practical experience in building your own gear. You also have to learn the regulations involved with the Novice Licence.

The RSGB say that the course will probably last about 12 weeks (something like 30 hours in all). Obviously some people may take more time than this, others may take less. The practical course doesn't finish with an exam, but you are assessed whilst you work your way through the specific tasks.

If you think you would like to embark on one of these practical courses, then you should write to the RSGB asking for details of your local courses. Their address is RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE - you should also mark your envelope 'Novice Training'.

The exam bit of the Licence can be done four times a year again at different exam centres around the country. There are 45 multiple choice questions to answer and you get 90 minutes to do it. I would contact your local radio club as someone there will be able to advise you on courses on lessons to help with the exam. Local radio clubs will also help with the Morse code learning.

Obviously there's loads more I could tell you about the course, but if you're interested in taking it further, I would strongly advise you to contact both the RSGB and your local radio club. If you don't know how to find a radio club near you, drop me a line and I'll try to put you in touch.

Log Books

In the July issue, I mentioned log books and where to buy them. I've heard from Mark Rich who uses a W H Smith Accounts Book. The ruled lines provide him with boxes for station name, frequency, date and SINPO rating. Since hearing from him I went out and had a look at the book in question and I can see why they're so useful. They're considerably cheaper than the 'official' option too!

Thanks for the idea Mark. Any other money saving ideas like this are always welcome.

Roberts Radios

I thought that I would tell you about two new budget range models from Roberts Radio. It's not easy being an s.w.l. when you're restricted by pocket money, so it's good to hear about more affordable radios. I'm hoping to be able to review one of these in the near future, so I'll be able to tell you more then.

First the R101, which costs £49.99. It's a 9-band radio covering the 49, 41, 31, 25, 21, 19 & 16m short wave bands, plus f.m. and m.w. The tuning is analogue, which isn't the most accurate you can get, but that doesn't stop you DXing. Included in the price is a soft carrying case, frequency guide and stereo earpieces.

The second radio is the R621, costing £59.99. This radio has eight short wave bands, 49, 41, 31, 25, 21, 19, 16 &13m, as well as m.w. and f.m. Extra features include things like a clock alarm with dual time-zone settings, snooze function and 60 minute sleep timer. Again it comes complete with soft carrying case and stereo earpieces.

Neither radio is very big - just about pocket size - and I'm looking forward to trying one out. When I do I'll keep you posted!

news

RAE Courses

Stockport: Avondale Adult Education Centre, Heathbank Road, Edgeley, Stockport, Cheshire. Mondays evenings from 7-9pm is Morse Code classes, Tuesday evenings from 7-9pm is RAE classes. Enrolment takes place in the week commencing September 14. Courses start week commencing September 28. More information on 061-477 2382 (day) or from the lecturer on 061-427 4730 evenings and weekends.

Nottingham: Arnold & Carlton College, Digby Avenue, Mapperley, Nottingham NG3 6DR. The full course leading to the May examination will run on Wednesday evenings from 6.30 to 9.15pm commencing on September 16. Tutor, Alan Lake G4DVW. Fee £48.20 + £2.00 registration fee. The short course is aimed at the December examination, it will run on Thursdays evenings from 6.30-9.15pm and will commencing September 17. Tutor, Alan Lake G4DVW. Fee £24.10 + £2.00 registration fee. A second similar course will commence in January to prepare students for the May examination. Morse classes will run on Wednesdays from 7-9pm, tutored by G4NZU. Fee £8.05 plus £2.00 registration fee. Enrolment is between 2 and 7pm September 8-10. Central Admissions, Arnold & Carlton College, Digby Avenue, Mapperley, Nottingham. Tel: (0602) 615886.

Greater Manchester: Reddish Vale Evening Centre, Reddish Vale Road, Stockport. RAE course leading to the May exam begin on September 28 between 7 and 9pm. Facilities will be available for those wishing to sit the December exam. Morse code classes will start on October 1 from 7 to 9pm. Enrolment is September 14, 15 & 17 between 7 and 8pm. More details from the course tutor, Dave Wood, Tel: 061-430 6246 most evenings.

Mansfield: West Notts College, Mansfield. Full RAE course starts September 14 from 7 to 9pm for the May exam. Enrolment takes place on September 9 and 10. More information from course tutor, Alan Lake G4DVW. Tel: (0602) 382509.

Wolverhampton: Ounsdale High School, Ounsdale Road, Wombourne. RAE classes on Mondays 7.15 to 9.15pm, start September 21. Enrolment is 14 and 15 September at Wombourne Community Centre, Church Street. Bob G3NOW. Tel: (0902) 331985.

Manchester: North Trafford College, Talbot Road, Stretford M32 0XH. Theory classes are Monday evening or Wednesday morning, Morse Code classes will be Tuesday evenings or Wednesday afternoons, amateur TV classes are Wednesday mornings and advanced radio course will be Tuesday afternoons. Enrolment dates are September 2-4.

Meopham: 21 Willow Walk, Culverstone, Meopham. The cost of the course is £50 (plus the exam feed payable to the college). The course runs from the last week of September through to the May exam. Individual daytime course can be arranged. Contact, Len Buck. Tel: (0732) 823483.

Adventist World Radio

Adventist World Radio (Europe) Sunday DX programmes are continuing via the Forli, Italy, transmitter.
0600-0700UTC on 7.205MHz
0900-1000UTC on 7.230MHz
(repeat)

The DX section occupies the first 15 minutes of the broadcast. Subject to satisfactory test evaluations, AWR expect to carry their DX programmes via the Moscow transmitter in due course. This will give good coverage throughout Europe .

Christmas Computer Show

The Christmas Computer Shopper Show takes place at Olympia's Grand Hall from November 19-22. More than 100 companies have already booked into the show, and more than 55000 people are expected to visit the show over the four days it is open.

Popular features at the Christmas Show will be regularly run Buying Advice Sessions and the Software Presentation Forum, where leading companies will put their products through their paces. A Notebook and Printer Test Station will offer visitors an unpressured environment to try out and compare the leading products in these areas.

The Christmas Computer Shopper Show '92. Blenheim PEL. Tel: 081-742 2828.

Photographic Mystery

The photograph shown here has been given to a group of amateur photographers by the family of the late Harold White. Mr White was a prominent professional photographer during, before and after WWII. The photograph has the caption 'Transatlantic Relay (M) 1939'. The equipment may, or may not be, radio equipment. The two small boxes below the operator's hand appear to be Morse keys. Do any readers have any ideas what this equipment is or where it was located.

Paul Godfrey. 77 St. Margarets Road, Lowestoft, Suffolk NR32 4HT.

RAFARS QSL Bureau

If anyone has any cards for RAFARS members, or for RAFARS special event stations, they should be sent to: **QSL Bureau Manager, Ian Wicker, 28 Lee Warner Avenue, Fakenham, Norfolk NR21 8ER.**

Universal Move

Universal Radio Inc have moved. Their new address is: **Universal Radio Inc., 6830 Americana Parkway, Reynoldsburg, Ohio 43068, USA.**

Special Event Stations

The North York Moors is one of Britain's eleven National Parks, where special care is taken to conserve beautiful landscapes for the benefit of all. The National Park was designated in 1952 and extends over 555 square miles of heather moorland and attractive dales farmland, edged on the eastern side by some of the highest cliffs in England.

To celebrate the 40th anniversary of the National Park, the DTI have issued the callsign GB40NY, which the Scarborough Special Events Group will be using from Sutton Bank Visitor Centre, during the weekend September 12/13. Operation will be around 3.725 and 7.055kHz in the h.f. bands plus 144 and 432MHz. A special, full-colour, souvenir QSL card will be issued to commemorate the occasion. Further details can be obtained from: **Roy Clayton. 9 Green Island, Irton, Scarborough, North Yorkshire YO12 4RN.**

Morse Class

Morse for radio amateurs, short wave listeners and pilots will be taught at Telford College from September, starting on Thursday, September 24, from 7pm. Enrolment for the course is on September 7 from 2 to 8pm and September 8 from 10 to 8pm. Last year the course achieved a 100% pass rate.

John Christophers. Tel: (0952) 641122.

FM Radio Stations in France

For the 3rd year, the Club Europeen de DX Radio TV is publishing *FM Radio Stations in France.*

This 200-page handbook lists more than 3000 stations, presented by 'departments', frequencies and names operated by Radio France, f.m. networks, independent firms or associations. As the guide is in frequency order throughout, it should provide the DXer with accurate information to identify French domestic radio stations. For the first time, the last part of the book offers a complete list of french radio station addresses.

The cost of the 1993 edition is 120FF in France or 130FF in Europe (postage included), two updates in the form of newsletters cost 50FF.

Club Europeen de DX Radio TV, BP114, 13652 Salon de Provence Cedex, France.

news

Coastguard Association

G0RCA has been allocated to the Coastguard Association Amateur Radio Society. The Society was formed to foster relations between serving and retired regular and auxiliary Coastguard Officers who hold amateur radio licences.

The CGA amateur radio net is at present on Sundays at 1000 local time on 3.785MHz ±5kHz and again, when possible, at 1900. The net controller is G3RCX and all are welcome to join.

EDXC Club List

The European DX Council has an *EDXC Club List* available. This 16-page booklet gives details of each member and observer club together with information about the Association of North American Radio Clubs and the South Pacific Association of Radio Clubs.

The booklet can be obtained from the European **DX Council, PO Box 4, St Ives, Huntingdon PE17 4FE** and the cost is £1 or 3 IRCs world-wide.

DXing USSR

The New Wave DX Club in St Petersburg produce a booklet called *DXing USSR and Former Soviet Territories*. It includes information such as how to word a report to Soviet local stations, in English and Cyrillic as well as details on different radio stations in and around the former USSR.

Copies are available for $3, which just covers printing and postage, from: **Aleksey Osipov, Kazanskaja 4 - 87, St Petersburg 195213, Russia.**

Postal Auction

Greenweld are holding a clear-out sale with a difference. A catalogue with hundreds of lots has been prepared and will be sent to anyone who encloses an s.a.e. Bids can be submitted by post until 5.30pm on Monday September 7. Lots vary from individual items to thousands. Fuller details of all goods listed in the catalogue can be seen in a special supplement available for £1 and an A4 s.a.e. with a 28p stamp. **Greenweld Electronic Components, 27 Park Road, Southampton SO1 3TB. Tel: (0703) 236307.**

DSWCI Short Wave News

Danish Shortwave Clubs International has been going for some 36 years now, and the monthly magazine, *Short Wave News*, is produced entirely in English. It covers all aspects of short wave listening and usually arrives through its readers' letterboxes around the 10th of each month.

If you would like more details on the club and its newsletter, contact: **Noel R. Green, 14 Marsden Road, Blackpool, Lancashire FY4 3BZ.**

Active Airband Antenna

C.M. Howes Communications have introduced an Active Airband Antenna. Covering 118 to 137MHz, it uses an end-fed, half-wave antenna element with a low noise, i.c. pre-amplifier. A band-pass filter gives extra rejection of out-of-band signals. Strong in-band signals can be reduced by the 10dB switched attenuator. The amplifier has a gain of more than 15dB with a noise figure of under 3dB. A 12 to 14V d.c. supply at less than 20mA is needed.

Ribbon cable is used for the antenna element, which can be packed into a small space for holidays, etc. For a permanent installation, it fits into a 1.5in plastics water pipe, but it can be used 'naked' for loft or indoor use.

The kit includes three, good quality, p.c.b.s, with screen printed parts locations, ribbon cable, plus all board-mounted components and full, clear instructions.

The Howes AB118 Active Airband Antenna costs £17.70 in kit form, £24.70 as built and tested p.c.b.s - both plus £1.20 P&P from **C.M. Howes Communications, Eydon, Daventry, Northants NN11 6PT. Tel: (0327) 60178.**

In Memoriam

"It is with sadness I have to report the sudden death of Brian Smith G4NKH on Sunday July 12. Brian had lots of excellent ideas for amateur radio, the first of these being the *G4NKH Buyers and Sellers Register* in 1990, this later became the *Buyer and Sellers Digest*. More recently the *Buyers and Sellers Digest* had a change of name to the *Radio Amateur Advertiser* this was to give a better indication of its contents.

The company will carry on producing ECG and RAA in memory of Brian."

Paul Hardy, Technology Partners Publishing, PO Box 6, South Shore, Blackpool FY4 4YG. Tel: (0253) 405040.

Radio Procedure

If you like listening to the marine bands, then a cassette on the cover of the July issue of *Motor Boat and Yachting* could be for you.

A refresher course on v.h.f. radio procedure for boat enthusiasts, it deals with the principles, Channel 16, ship to ship, the phonetic alphabet, marina channels, Coastguard channels, links calls, accounting authorities, emergency procedures and Selcall.

Back issues of the magazine, with the cassette, cost £2.50 including P&P. **Motor Boat and Yachting, Kings Reach Tower, Stamford Street, London SE1 9LS.**

Kenwood News

From December 1, Trio-Kenwood UK Ltd will take over the distribution of Kenwood amateur radio products in the UK and Ireland from Lowe Electronics.Ltd.

Lowe Electronics will continue to distribute the products until the end of November - by which time Trio-Kenwood UK will have set up dealerships - avoiding any disruption of supply to customers. Trio-Kenwood's Communications Division Sales and Marketing Manager said, "Our relationship with Lowe Electronics has been long and successful and we look forward to its continuation, albeit on a different basis".

When is a Pirate not a Pirate?

When it's Pirate FM, of course! Pirate FM broadcasts to Cornwall and East Devon on 102.8MHz f.m. from transmitters at Redruth and Caradon Hill. They operate from a single studio complex at Carn Brea, near Redruth, but they broadcast editionalised news to East and West Cornwall at peak periods.

Cornwall Independent Radio Ltd (Pirate FM), Carn Brae Studios, Wilson Way, Redruth, Cornwall TR15 3XX.

muTek limited

The *muTek limited 1992 Product Guide* contains details of the various modules that the company produce. If you would like a copy, it's free from: **muTek limited., PO Box 24, Long Eaton, Nottingham NG10 4NQ.**

Happy 60th

BBC Transcription - the overseas sales arm of the BBC World Service which introduced radio classics including *The Goon Show* and *My Music* to listeners throughout the world - has just celebrated its 60th birthday.

They sell programmes both specially recorded and previously recorded by the BBC to overseas radio stations in 100 countries

When it comes to sheer know-how
Look to Lowe

The NRD-535 with a subtle difference

The NRD-535 is a fine receiver, and fully confirms the JRC leadership in this particular field. However, even the best can be improved in specific areas; and after lengthy evaluation of the NRD-535 we decided that there were worthwhile improvements which we at Lowe, with our knowledge and specialist expertise could introduce to the more discerning listener – for it is the true "listener" who will appreciate what we have done.

First; we thought that the audio from the NRD-535 was not totally easy on the ear, and detailed investigation showed that the audio response had been "tailored" to suit the rather round shouldered response of the IF filtering. So, we went back to the IF filters and specified a higher performance SSB crystal filter with a 6dB bandwidth of 2.4kHz and a typical shape factor of 1.8:1; with less than 1dB passband ripple. For AM, we fit a more expensive filter with a 6dB passband of 5.7kHz and a shape factor of 1.5:1. The response of these new filters is very flat within the pass band, with steep symmetrical sides giving excellent adjacent channel rejection. The use of these more expensive filters allowed us to flatten the audio response of the receiver giving a much cleaner sound quality and a real improvement in intelligibility both on communications and broadcast stations.

We have noticed in the past that the audio output power from most modern receivers is barely adequate for driving a good loudspeaker, and since we now had top quality audio from the NRD-535, we designed and fitted a completely new audio power amplifier with enough power (3W at 5% distortion) to enable the user to sit back and enjoy that quality to the full.

The use of synchronous AM demodulation and/or ECSS is an established feature of many newer receivers, and fitting the optional CMF-78 ECSS board to the NRD-535 provides the user with the potential to recover good audio from signals which are subject to selective fading.

However we noticed a tendency for the ECSS to unlock during deep fades and then fail to re-lock after the fade. We now have a series of detailed modifications to the ECSS unit which removes this tendency and also improves the recovered audio.

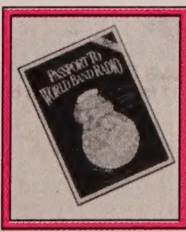
The Lowe Electronics modification pack definitely makes a good receiver into an outstanding receiver. When we sent a sample of our modified NRD-535 to Jonathan Marks at Radio Nederland, he confirmed that the results were quite remarkable and said so in no uncertain terms. We think that you will agree.

Naturally, these modifications cost a little more, but to complete the whole package we also pre-age the master reference oscillator in the receiver, check out the alignment, and issue an individual test certificate with each one. And because we are proud of our work we add a discreet badge to the front panel to tell you that you own a receiver with a difference.

The "Lowe" NRD-535. We make a good receiver into an outstanding receiver.

- New high specification IF crystal filter for SSB
- New high specification IF filter for AM
- New calculated audio bandwidth "flattening".
- New higher power audio output system.
- New tighter specification ECSS system.
- Pre-ageing and "burn-in" of master oscillator.
- Individual test certificate for each receiver.

NRD-535.....**£1195**
CMF-78 ECSS unit.....**£239**
Lowe modifications.....**£117**
Carriage.....**£10**



THE LISTENERS' BOOK OF THE YEAR GETS EVEN BETTER

The new 1992 issue of 'Passport to World Band Radio' is now with us and it's even better than before. The 200 pages have risen to almost 400 and every section carries the unmistakable authority of the world's best short wave companion.
Broadcasts are listed as before; not only in frequency order but also by language, country of origin AND the times of broadcasts. There are no less than 56 pages or receiver reviews, including the latest NRD-535 and Drake R-8, together with news, views and general information.
If you own a short wave radio, you MUST have the 'Passport' by its side. The price last year was £12.95; we have kept the price the same this year at £12.95 (plus £1.55 p&p.). Send off today.

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Chesterfield Road, Matlock, Derbyshire DE4 5LE Telephone: 0629 580800 Fax: 0629 580020

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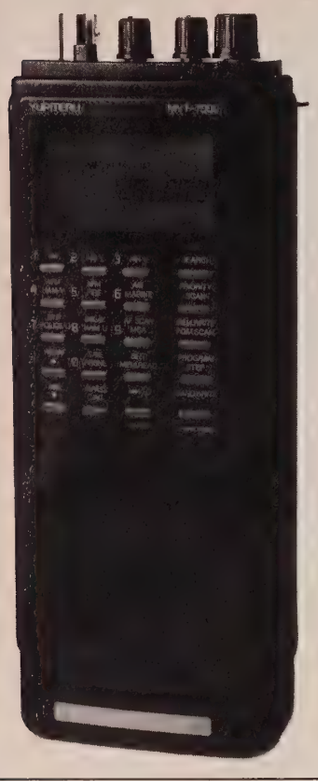

VHF/UHF RECEIVERS.
We stock the lot – from AOR to YUPITERU

Although our real love is HF, we recognise that many folk find that a handy VHF/UHF scanner provides a lot of listening enjoyment, and we stock all of the popular makes.

We also insist on telling the truth about them, and there are a couple of basic rules to observe. First, I know that they say the scanners will cover from 500kHz to 1300MHz, but if you think that they will perform on short wave – forget it. They are all barely adequate (except the AR-3000A but that's in a class of its own). Secondly, if you want to particularly listen to airband, for goodness sake buy a dedicated airband scanner because it will handsomely out-perform all of the wide frequency range receivers, (except again the AR-3000A).

Currently top of the shop are the VT-225 and VT-125 from Yupiteru. Daft name, but good gear. The VT-125 is VHF airband only, and the VT-225 gives both VHF and UHF airband. Prices are good at £149 for the 125 and £229 for the 225.

For wide range scanning, the MVT-7000 has established a good reputation for styling, ease of use, and good performance. Full coverage and 200 memory channels. Nice one. £289.

The new AR-1500 from AOR is interesting, because it is the first hand-held to offer a BFO for receiving SSB on short wave. (It covers 500kHz to 1300MHz by the way). My first reaction to its announcement was less than enthusiastic, but even I will say that it can make a reasonable job of SSB even though it is a long way from being a short wave receiver. Small and handy, the AR-1500 comes in at £279.

The AR-3000A – now this does stir the blood because it is an amazing achievement. To pack such a receiver in such a small package takes a lot of engineering, but the performance is excellent, and I can recommend it – only snag is the price, but for £765 it's a H*** of a good radio.

Want to know more? Just ask for full details at any of our branches, or send 4 first class stamps and request the "Airband Pack". Call in and see us soon for all that's good in receiving – DC to light.

Communications Receivers from KENWOOD

R-2000

- 150kHz - 30MHz 118MHz - 174MHz (optional)
- LSB, USB, CW, AM, FM
- Digital VFO with excellent stability
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- 375mm(W) x 115mm(H) x 210mm(D)
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- On demonstration at all Lowe Regional Centres

R-2000 £549 inc VAT

R-5000

- 100kHz - 30MHz 108MHz - 174MHz (optional)
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- 10Hz step Dual Digital VFOs
- Superb Interference Reduction
- 100 memories with full data storage
- Dual 24-hour quartz clocks
- Keyboard frequency selection
- RS-232C interface for use with 'CONTROL' software

R-5000 £925 inc VAT

FREE

Send four first class stamps to cover the postage and we will send you, by return, your FREE copy of 'THE LISTENERS GUIDE' (2nd edition); a commonsense look at radio listening on the LF, MF and HF bands. Its unique style will, I am sure, result in a 'good read'; but underneath the humour lies a wealth of experience and expertise. You will also receive detailed leaflets on our range of receivers and a copy of our current price list.

Access

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LONDON (MIDDX): 223/225 Field End Road, Eastcote Tel: 081-429 3256 **NEWCASTLE:** Newcastle International Airport Tel: 0661 860418

grassroots

rallies

* Short Wave Magazine & Practical Wireless in attendance *

August 30: The Galashiels Club will hold their Open Day from 11 to 4.30pm at the Focus Centre, Livingstone Place, Galashiels. **John Campbell. Tel: (0835) 22686**.

August 31: Huntingdon ARS will be holding their annual Rally and Junk Sale at the Medway Centre, Coneygeare Road, Huntingdon. Doors open 11am, and closes at 4pm. Trade stands, Bring & Buy, Components, Junk and the usual refreshment bar will be there. Car boot pitches are available. **David Leach G7DIU. Tel: (0480) 431333**.

September 6: The Vange ARS are holding their rally in the Laindon Community Centre, Laindon High Road/ Aston Road, Laindon, Basildon. The Centre is only a short walk from Laindon station (British Rail) on the Fenchurch Street to Shoeburyness Line. Doors open from 10.30am to 4.30pm and admission is 75p and a free raffle. Talk-in is on S22. Approach roads will be signposted. **Mike Musgrave. Tel: (0268) 543025**.

***September 6**: The Bristol Rally will be held in Brunel's Great train Shed, Temple Meads Station, Bristol. Lots of traders in an historic venue.

***September 13**: The 11th Lincoln Hamfest will be held at the Lincolnshire Showground and Exhibition Centre, 14 miles north of the city on the A15 Scunthorpe Road. In addition to the usual stands of interest to the radio amateur they hope to have helicopter rides, model car racing and model aircraft displays. Refreshments (hot and cold/inside and outside) and licensed bar with real ale. **Sue Middleton. Tel: (0522) 531788**.

***September 13**: The British Amateur Radio Teledata Group Rally will be held at Sandown Park Exhibition Centre, Esher, Surrey. **Peter Nicol G8VXY. Tel: 021-453 2676**.

September 13: The Telford Rally will be held in the Telford Exhibition Centre, Telford, Shropshire. Doors open 10.30am. Admission is £1. Traders, flea market, restaurants, bars, free parking, NO Bring & Buy.

September 20: The East of England Radio Rally (Peterborough R & ES) will be held in the ICI Building, The East of England Showground, Peterborough. Admission is £1 with doors opening at 10.30am (10am for the disabled). **Mike Bowthorpe G0CVZ. Tel: (0733) 222588**.

September 20: The Centre of England Radio Computer & Satellite Rally will be held at the British Motorcycle Museum, Bickenhill, near the NEC, Birmingham. Doors open 11.30am. Admission, £1, OAPs 50p and children under 14 free. Over 60 trade stands in three large exhibition halls, talk-in on S22, bar and restaurant available, ample free parking, concessionary rates to visit museum. **Frank Martin G4UMF. Tel: (0952) 598173**.

AVON

RSGB City of Bristol Group: last Mondays, 7pm. The Small Lecture Theatre, Queens Building, University of Bristol, University Walk, Bristol. September 28 - First Aid with Reference to Electric Shock by Cyril Tippins. Dave Coxon G0GHM. (0275) 855123.

South Bristol ARC: Wednesdays. Whitchurch Folkhouse Assoc, Bridge Farm House, East Dundry Rd, Whitchurch. September 2 - AGM, 6th - Bristol Rally, 9th - Reviewing the Rally by G4WUB, 16th - Mystery...come & find out by G3OUK, 23rd - 10GHz Night by G4YTH, 30th - Summer Snaps, show us all by G0DRX. Len Baker. Whitchurch 832222.

BERKSHIRE

Reading & DARC: 2nd & 4th Thursdays, 8pm. The Woodley Pavilion, Woodford Park, Haddon Drive, Woodley, Reading. September 10 - Autumn Junk Sale. Nick Challacombe. (0734) 722489.

CHESHIRE

Chester & DRS: Upton Recreation Centre, Cheshire County Sports & Social Club, Plas Newton Lane, Chester. David Hicks. (0244) 336639.

DERBYSHIRE

Derby & DARS. Wednesdays, 7.30pm. 119 Green Lane, Derby. September 2 - Junk Sale, 9th - Lightning Protection by Furse & Co, 16th - Crime Prevention by Sergeant Wood of Derbyshire Police, 23rd - Pyrography by Bob Neil. Richard Buckby. Ambergate 852475.

DEVON

Torbay ARS: Fridays, 7.30pm. ECC Social Club, Highweek, Newton Abbot. September 18 - CQ World-wide '89 Video. Walt G3HTX. (0803) 526762.

EAST SUSSEX

Hastings E&RC: 3rd Wednesdays, 7.45pm. West Hill Community Centre, Croft Road, Hastings. Fridays, 8.30pm. Ashdown Farm Community, Downey Close, Hastings. September 16 - Measuring Antenna Performance by G3LDO. Reg Kemp. 7 Forewood Rise, Crowhurst.

Southdown ARS: 1st Mondays, 7.30pm Chasely Home for Disabled Ex-Servicemen, Southcliff, Bolsover Road, Eastbourne. Wednesdays & Fridays, 7.30pm. Hailsham Leisure Centre, Vicarage Road, Hailsham.

GREATER LONDON

Acton, Brentford & Chiswick RC: 3rd Tuesdays, 7.30pm. September 15 - QSL Cards by G0JRY. Paul Truitt G4WQO. 071-938 2561.

Edgware & DRS: 8pm. Watling Community Centre, 145 Orange Hill Road, Burnt Oak. September 10 - Radio Data Systems by G0LZV, 24th - Morse Training Evening. Hank Kay G0FAB. (081-205 1023).

Southgate ARC: 2nd & 4th Thursdays. Winchmore Hill Cricket Club Pavilion, Firs Lane, Winchmore Hill, London N21. September 10 - Model Aircraft by G0MEO, 24th - Radcom by G3XDV. Brian Shelton G0MEE. 081-360 2453.

Wimbledon & DARS: 2nd & last Fridays, 7.30pm. St Andrews Church Hall, Herbert Road, SW19. September 11 - Interclub Quiz Night, 25th - General Activity Evening. Chris Frost. 081-397 0427.

HAMPSHIRE

Horndean & DARC: 1st Thursdays, 7.30pm. Horndean Community School, Barton Cross, Horndean. September 3 - Surplus Two-way Radio Conversions by Chris Lorek. S.W. Swain. (0705) 472846).

Three Counties RC: Alternate Wednesdays, 7.30pm. The Railway Hotel, Liphook, Hants. September 9 - The History of Witchcraft in the Three Counties by Jeremy Ross, 23rd - Computer Prediction of h.f. Radio Propagation by G7CAW. Kevin G8GOS. (0420) 83091.

HERTFORDSHIRE

Dacorum AR & TS: 1st (informal) & 3rd (formal) Tuesdays, 8pm. The Heath Park, Cotterells, Hemel Hempstead. September 15 - EMC by G3GRV. Dennis Boast. (0442) 259620.

Hoddesdon RC: Alternate Thursdays, 8pm. Conservative Club, Rye Road, Hoddesdon. September 3 - Social Night, 17th - WAB by G4OBE. Roy G4UNL. 081-804 5643.

HUMBERSIDE

Goole R & ES: Most Fridays, 7.30pm. West Park Pavilion, off Airmyn Road, Goole. Last Fridays. The Black Swan Inn, Asselby. September 4 - GOOLE 'On Air' Night, 11th - Video Evening (Microwave), 18th - AGM, 25th - Social Evening at the Black Swan. Steve Price. (0405) 769130.

KENT

Bromley & DARS: 3rd Tuesdays, 7.30pm. The Victory Social Club, Kechill Gardens, Hayes. September 15 - Radio Investigation Service/Baldock Radio Monitoring Service by Alan Betts. Geoffrey Milne. 081-462 2689.

Maidstone YMCA ARS: Alternate Thursdays. YMCA Sports Centre, Melrose Close, Maidstone, Kent. Sept 1 - Dummy Morse Tests 8-10pm, 4th - Open Night, 11th - RAE, 12th - RSGB Morse Tests, 18 - Antennas by G3ORP, 25th - RAE. C.L. Roberts. (0622) 670936.

Sevenoaks & DARS: Sevenoaks DC, Council Offices, Argyle Road, Sevenoaks.September 21 - Amateur Satellites by Bob Phillips. West Dulwich.

West Kent ARS: 3rd Fridays, 8pm. The School Annex, Albion Road, Tunbridge Wells, Kent. September 18 - Construction Contest. John Taylor G3OHV. (0892) 664960.

LANCASHIRE

Preston ARS: Alternate Thursdays. The Lonsdale Sports & Social Club, Fulwood Hall Lane, Fulwood. September 3 - Test Equipment by Mr Grimes, 17th - Novice Licence by Mr Williamson. Eric Eastwood G1WCQ. (0772) 686708.

NORFOLK

Norfolk ARC: Wednesdays, 7.30pm. The Norfolk Dumpling, The Livestock Market, Harford, Norfolk. September 2 - Town & Country Show Final Briefing, 7th - Kite Flying /P Radio Day at East Tuddenham NFD site, 9th - Flying Radio Controlled Models by G4ODC, 13th - Town & Country Show, 16th - Make A Rig Night by G3YLA, 23rd - Informal & Committee Meeting, 30th - AC Op-amp Circuit Design by G0KRU. Jack Simpson G3NJQ. (0603) 747992.

NORTH YORKSHIRE

York ARS: Fridays, 7.30pm. York City Social Club, Bootham Crescent, York. September 27 - Annual Cub Day. K.R. Cass G3WVO. 4 Heworth Village, York.

NOTTINGHAMSHIRE

Mansfield ARS: 1st Thursdays, 8pm. The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. September 3 - Narrow Band TV by Doug. Mary G0NZA. (0623) 755288.

South Notts ARC: Fridays, 7pm. Highbank Community Centre or Fairham Community College, Farnborough Road, Clifton Estate, Nottingham. September 20 - 6th Foxhunt, 27th - Treasure Hunt. Ray G7ENK. (0602) 841940.

OXFORDSHIRE

Oxford & DARS: 2nd & 4th Thursdays, 7.45pm. British Legion Club, Haddow Road, Crotch Crescent, Marston Road, Oxford. September 24 - Computer Viruses by Dr R. Ford. Terry Hastings. (0865) 863526.

SOUTH YORKSHIRE

Barnsley & DARC: Mondays, 7.15pm. Darton Hotel, Station Road, Darton, Barnsley. September 7 - On the Air Night, 14th - Junk Sale. Ernie G4LUE. (0226) 716339.

SUFFOLK

Sudbury & DARC: 1st Tuesdays, 8pm. The Five Bells Inn, Great Cornard, Sudbury. Colin Muddimer. (0787) 77004.

WARWICKSHIRE

Stratford upon Avon & DARS: 7.30pm. The Home Guard Club, Main Road, Tiddington, Stratford-upon-Avon. September 14 - Opening Evening, Mike Webb Award, 28th - Visit from Castle Electronics. A. Beasley G0CXJ. 060-882 495.

WEST MIDLANDS

Midland ARS: 3rd Tuesdays, 7.30pm. Headquarters Unit 22, 60 Regent Place, Birmingham B1 3NJ. September 25 - Atari Night, 28th - Computer Night. John Crane G0LAI. 021-628 7632 (evenings).

WEST YORKSHIRE

White Rose ARS: Wednesdays, 8pm. Moorton RUFC, Moss Valley, King Lane, Leeds LS17 7NT. Shack open Sundays noon to 3pm. Betty Cappelluto. (0532) 555488.

Club Secretaries:
Send all details of your club's up-and-coming events to;
'Grassroots',
Lorna Mower
Short Wave Magazine, Enefco House,
The Quay, Poole, Dorset BH15 1PP

second post...

pirates & censorship

Dear Sir
Reading through the text of the letter from the Radio Authority I find the same old tired reason of interference. Most of the so-called pirate stations are using equipment of 10 to 30W output, do they seriously expect anyone to believe that these stations transmissions do interfere with stations operating perhaps 10kW of s.s.b. or RTTY? I don't think so.

There is the well documented case of both Caroline and Laser being asked to cease transmissions because the coastguard was getting interference which persisted, and was later found to be the BBC. But the blame was still laid on the ships. Then there is the matter of out of band broadcasts. I, therefore, expect to see Vatican Radio on 6.245MHz told to move, along with Radio Moscow and several American religious broadcasters, plus the World Service of the BBC. Not to mention an as yet unidentified station on 6.210MHz.

M. Coe
Kettering

Dear Sir
Just as *Short Wave Magazine* - through Andy Cadier - gets an interesting free radio column going to complement all the other aspects of the radio hobby covered in *SWM* and make it the most comprehensive radio magazine available in Britain - along comes the Radiocommunications Agency to spoil other people's enjoyment.

Andy Cadier's column only listed those unlicensed radio stations that had been heard by radio enthusiasts on the h.f. and v.h.f. radio bands during the tree month period prior to any particular issue of *SWM*.

The Radiocommunications Agency states that these unlicensed operators, "are an irresponsible minority that mis-use the frequency bands assigned exclusively to the maritime and aeronautical services".

Can they explain why it is that they or their foreign counterparts cannot do or say anything about the many other powerful 'legitimate' radio stations such as Radio Monte Carlo, Trans World Radio, Vatican Radio, Voice of Hope, Radio La Voz CID and other unidentified legal stations that appear in this part of the 48m h.f. band.

Is it that there is one law for all the powerful international radio institutions and another for the tiny little unlicensed operator?

It is a sorry state of affairs that through the latest actions of the Radiocommunications Agency they would seem to want to prevent the historical record of unlicensed radio stations having been heard on air.

The theory behind this would appear to go along the lines that the publication of the date, time and frequency of an unlicensed radio station being heard on air in some mysterious way helps to promote unlicensed broadcasting.

If this same simple logic is applied to other fields - why is it not said that the reporting of criminal activities on out daily newspapers leads to an increase in crime?

Ken Lancaster & Morris Walker
Barnsley & Halesowen

Dear Sir
I note with some dismay that Andy Cadier and your good selves have had your collars felt by the Radiocommunications Agency.

Oh dear, now we'll all be breaking the law.

After all, when you kindly listed the frequencies of station we shouldn't listen to, we knew where we stood and like good citizens left these frequencies alone (didn't we?).

Now, of course, if we hear a pirate station who is to tell if it is legal or not? In the absence of any clarification we'll all be listening to stations we shouldn't - still, serves 'em right for collar feeling!

K. Anderson
Poulton-le-Fylde

Dear Sir
I gather that you have received representations from the Radiocommunications Agency regarding the future of the 'Off the Record' feature.

Doubtless, what you have been sent will have been very carefully worded. You have to distinguish between two things. Reporting factual information about events which occur is in no way unlawful. 'Publicising' something which somebody is planing might be different.

I would urge you to reply robustly to the DTI and assure them that your editorial review ensures that what is published complies with the laws of the land.

Trevor Brook, Cranleigh

religious broadcasters

Dear Sir
Trans World Radio has very strict rules about the content of broadcasts which many of us make. No-one is allowed to be negative or to issue anything which runs anybody down, but all broadcasts must be in love and helpfulness. No particular denomination is ever mentioned in a derogatory way. Any broadcaster who includes material which does not observe these strict rules, is edited out by Trans World Radio.

Preb Dr Victor Pearce
Eastbourne

Dear Sir
We all have a tuning knob on our radios to tune elsewhere if we do not like some types of programming, and that also goes for any other station or programming we don't like. Some people like the type of programming that TWR present. Other stations, like TWR are WYFR and WMLK both of the USA, and to a certain extent WWCR who push bible thumping propaganda on the airwaves, but WWCR do air some interesting non-religious programming, as does WHRI. King of Hope/Wings of Hope Lebanon also have some good programmes in their schedule. AWR and HCJB also have interesting programmes on various aspects of life with a religious message, for example Lifestyles on AWR usually cover health topics. WHRI present some enjoyable programmes of modern contemporary Christian music and songs.

Edwin Southwell
Basingstoke

Dear Sir
It is most unlikely that TWR will be banned as Mr Davidson wishes. This station's main 'thrust' if it can be called that, is that it emphasises the spiritual nature of men (& women); diametrically opposite to 'normal' stations such as BBC, VoA, Deutsche Welle, etc. They only deal with material matters and problems to which they have no solutions. Mr Davidson must persevere in his listening to TWR, FEBC, FEBA, etc., eventually the 'light' will dawn and he will be happy that he did so.

Dave Vicars
Brighton

Dear Sir
If Mr S. Davidson examines his radio closely, I'm sure he will find a control marked 'OFF' which he can use as soon as the 'rubbish' starts.

D E Bosher
Dolgellau

religious broadcasters

Dear Sir
Perhaps he has never listened to the excellent programmes transmitted by HCJB or CSM, to name but two, which contain a wide and interesting variety of subject matter.

That is the attraction of s.w.l.ing; one can travel the world from an armchair, as and when one wants without QRM from the likes of your correspondent.

There are countless stations, other than religious ones, that can be received. I assume the letter writer has a receiver, which in common with all others has on ON-OFF switch, so he does not have to listen to anything he does not want to. To my mind the bigot is in this case at the receiving end, not the transmitting - live and let live!

J.B. Brown
North Yorkshire

Dear Sir
Many of these religious broadcast stations do most certainly spew out fundamentalist, bigoted rubbish liberally intertwined with 2000 year-old biblical quotations which they feel justify their teachings to the world which is now entering the 21st century.

Many of us in Northern Ireland are surely aware more than most of the damage, pain and death inflicted by religious bigotry.

However, I would differ from S. Davidson on the question of banning these broadcasts. Instead why not listen to them and satisfy yourselves as to the content of the polished, antiquated ramblings of these paper doctors and ministers.

Victor Best
N. Ireland

Dear Sir
I agree with S. Davidson of Edinburgh: it is high time religious broadcast stations were banned.

All that is needed is a UN resolution to which all signatories pledge to devote 40% of their transmitter time synchronised to the frequencies of the offending stations, and broadcast continuous quacking ducks, or high pitched whistles.

This democratic action should not be confused with the deliberate jamming of western broadcasts by the former East European communist countries. That was the wicked suppression of truth.

This action is to save civilised and intelligent people from being hypnotised and therefore incapable of re-tuning their receivers.

Geoffrey Hodson
Norwich

Dear Sir
There is a very thin line between the supply of information, and promotion, and regrettably, in the feature on 'Religious broadcasting', *SWM* strayed quite clearly into promotion.

Many of these purveyors of superstition are past masters at self-promotion, and extracting cash from the vulnerable and gullible. They don't need any assistance from *SWM*.

Eddie McKeown
Co. Down

Dear Sir
S. Davidson's letter condemning your decision to include a feature on religious broadcasting was so extreme that at first I took it as a piece of humour, but I realised that he was serious.

Can he not see that his:"Don't listen to what you want to listen to - listen to what **I** want you to listen to " attitude is tantamount to 'intellectual fascism' and far more extreme and bigoted than anything I have heard on a religious short wave station?

Is there anything worse than Evangelising Christians? Yes. 'Evangelising' Atheists such as S. Davidson.

Martin Scholes, Telford

Dear Sir
Surely with views like this he is missing out on a great deal. Even if he does not wish to have the blessing of the Christian message, there are a number of other aspects in programmes from religious broadcasters. For instance, the warm, friendly voices of some of the programme presenters, nice easy-listening music, DX information and magazine type features.

Also there is freedom of choice. To switch on and find a religious broadcaster whose programmes are to one's liking, or to switch off on them all!

Sheila Hughes, Morden

Dear Sir
Mr S. Davidson's attack saddens me, especially as it is written in such emotive language and is so unbelievingly narrow-minded. For my part I have always enjoyed the various religious broadcasts from all parts and many are of very high standards and quality. I refer particularly to HCJB and R. Vatican.

Please do not be deterred by bigoted views as aired by the reader in question, but keep up the good work you are presently doing for the many appreciative readers who rely on you for fairminded and broad standards in the realms of the radio world.

Ciaran McCrossan
Co. Kildare

Dear Sir
As a devout atheist I am also not too keen on over-the-top evangelical drivel being rammed down my throat by money grabbing multi-million pound organisations. However, the choice is the listeners, the tuning knob or OFF button is only a fingertip away, if the 'bible thumping propaganda' becomes too much.

These broadcasts are found comforting by some, annoying to others. How would Mr Davidson feel if calls to ban his favourite kind of broadcasting were heeded?

On a DX point of view, how could radio countries such as Palau, Alaska, Guam and Lebanon be added to s.w.l. logs if the religious stations operations were curtailed?

Tony Vaughan
Southampton

Dear Sir
There is a very effective control on every radio usually marked ON/OFF. May I suggest S. Davidson uses it! Or perhaps if he did really listen for a minute or two he might at least realise his ability to utter such puerile rubbish was not the product of social modern technology, but the 'miracle of life' given to us all to do more or less what we please with it.

To start banning anything in this day and age is impossible, but if Hadrian had built his wall really high, that would have been a good start I'm sure....but it's too late now I'm afraid.

I trust the last paragraph is read and understood in the spirit of goodwill and friendship that must exist in us all...I hope!

David J Gommo, Somerset

Dear Sir
I have to declare an interest as I am involved with Trans World Radio, but also listen to many other broadcasters world-wide. A number of these organisations devote tremendous efforts to medical and social provision, in addition to their primary function of spreading the gospel, hardly the action of those filled with hate, but rather a practical expression of Christian love. Nobody has to tune to any radio broadcast; many do listen to TWR and other stations, and draw great help and encouragement from the programmes, particularly in those countries where anything other than official broadcasting is already banned, fortunately radio waves don't recognise such barriers! It has been said elsewhere, "He who has ears to hear, let him hear" - many have, and do.

Peter R. Bethell, Halifax

Dear Sir
S. Davidson might need reminding that there are controls on a radio that either will change frequency, or turn his radio off, so he does not have to listen to the 'garbage', as he calls it.

Many of these stations provide a service to minority groups and if S. Davidson was to take some time and listen, he might gain some knowledge of these minority groups and their culture.

It is not just these stations that put out a type of propaganda. All stations put, or have put out types of propaganda to do with their own point of view.

I find it's best to keep and open mind when listening or viewing the world, perhaps others should do the same.

R.J. Radford Reynolds, Guildford

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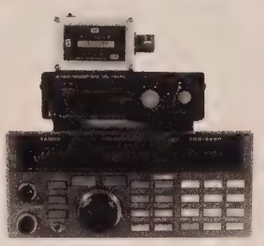

The **FRG9600,** a premium scanning receiver covering 60-905MHz, SSB, CW, AM & FM modes. 99 memories. 5, 10, 12.5, 25 & 100kHz scanning steps. Keyboard frequency entry. Optional convertors to extend range from 0.15-30MHz and 800-1300MHz

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The new NRD535 epitomises the very best in communications receiver design. This high technology product is based on the abundant technical experience gained by JRC in the professional communications receivers field. This means that the NRD535 is arguably one of the best receivers available to meet the discerning listeners needs. Brief specifications are as follows.
Frequency coverage: 0.1-30MHz; Operating modes: CW, SSB (LSB & USB), AM, FM, FSK & RTTY; Supply voltage: 240V A.C. or 13.8V D.C. ECSS, BWC & RTTY units available as options.

JRC
NRD535

DRAKE
R8E

DRAKE R8E

Now available from SMC the new DRAKE R8E communications receiver. These receivers utilise the very latest in technology to meet the demanding requirements of today's listeners. Conveniently located front panel controls allow for rapid operator programming and ease of use. The R8E receiver covers 0.15-30MHz and with the optional VHF converter will also cover 35-55MHz and 108-174MHz. The large clear LCD display gives the operator full information about the current receiver status.

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The very latest model available from SONY is the ICF-SW77. This receiver covers LW, MW, SW and FM stereo broadcast bands and has SSB reception on the SW bands. A comprehensive keypad and LCD display give easy control over the massive array of features available.
Other SONY products available include the minuscule ICF-SW1, the versatile ICF-SW7600, the popular ICF-2001D and for airband enthusiasts the AIR7 and ICF-PRO80.

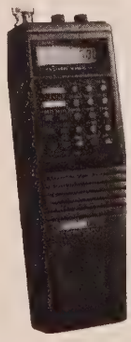
AOR AOR AOR

SMC are pleased to be able to offer a large number of models from the very comprehensive AOR range which includes both hand portables and mobiles/base stations.

All the receivers are built to the highest possible specification yet remain very competitively priced. Often the leaders in the field, the AOR range is proving very popular amongst both professional and non professional users.

The top of the range model must be the AR3000 which covers 100kHz–2036MHz without any gaps. The mid range model is the AR2800 which is a convenient unit for mobile or base operation and covers 500kHz–600MHz and 800–1300mHz. Last but not least is the AR2000 which is an extremely flexible handheld scanner covering 500kHz–1300MHz.
Why not contact us today for more details of the AOR range.

OTHER MAKES AND MODELS



The Bearcat 200XLT is the cream of the Bearcat handheld scanner range. With 200 memory channels and simple operation these are proving very popular. Frequency coverage 66-88, 118-174, 406-512 and 806-956MHz.

The compact HX850E is a basic scanner with a few memories. Ideally, suitable for a novice in the scanner market. AM/FM modes and a frequency coverage of 60-89, 118-136, 140-174 and 406-495MHz.

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AOR – ALL IN ONE

The **AR1500** is the World's first true compact hand-held wide range receiver offering SSB as standard and has arrived in the UK. Coverage is from 500kHz all the way to 1300MHz without any gaps in the range. Channel steps are programmable in multiples of 5kHz and 12.5kHz up to 995kHz, the BFO will allow tuning between these steps for SSB operation. All popular modes are provided NFM, WFM, AM and SSB (USB, LSB and CW) with the BFO switched on.

The receiver is supplied with a comprehensive selection of accessories: DA900 wide band flexible aerial, NiCad pack, Dry battery case (for use with 4 x AAA alkaline cells), Charger, DC lead fitted with cigar lighter plug, Earphone, Soft case, Belt hook, 5 metres (approx.) of aerial wire terminated in a BNC connector for shortwave reception and Operating manual.

Versatility is excellent. The AR1500 may be powered from it s internal NiCad pack, spare dry batteries may be carried for extended operation and used with the dry battery case, the set may also be plugged directly into the cigar lighter socket of a motor vehicle (external input range 11 - 18V DC).

Although offering a long list of facilities and operating modes, the receiver remains easy to operate. Many facilities have been carried across for the well proven AR2000 receiver. The AR1500 has a new `automatic memory' feature which automatically stores busy channels from search bank 9 into the 100 memory channels of scan bank 9.

There are 1000 memories in total arranged in 100 memories x 10 banks, there are also 10 additional programmable search banks. Each memory will store frequency and mode (NFM, WFM or AM - not SSB) the search banks will also store the step increment. There is a massive EEPROM memory store for all memories and search banks so that no backup battery is required. The memories may be over-written time and time again.

The display often provides `prompts' for selected operations such as a flashing "CH" to invite the user to key in a new memory channel number. All information such as frequency, mode (except SSB), channel etcetera is presented via an easy to see Liquid Crystal Display (LCD). The display is fitted with a switchable light to increase visibility in areas of low level lighting.

The AR1500 can meet a number of requirements to satisfy Airband or Marine enthusiasts, Professional off air monitoring and of course casual listening too. The World's shortwave and Amateur bands can be monitored, even the longer range Oceanic Airband and ship to shore. Of course the performance of this compact hand-held receiver can not be directly compared to that of the AR3000A or dedicated General Coverage Receiver.

Amazing value, all for an extremely attractive.

Recommended Retail Price of £279.00 including VAT.

The popular **AR2000** receiver continues. It has not been replaced by the new AR1500 receiver, the AR2000 remains a firm favourite with listeners and enthusiasts. Features include coverage from 500kHz - 1300MHz and reception of AM, NFM & WFM.

Recommended Retail Price £269.00 including VAT.

The **AR3000A** base/mobile receiver is an evolutionary step forward from the highly acclaimed AR3000, many major improvements have been implemented at the requests of enthusiastic listeners and commercial organisations. Search and scan speed has been increased to an unprecedented maximum of 50 increments per second.

Your listening horizons are truly extended with receive coverage from 100kHz all the way up to 2036MHz without any gaps in the range. The AR3000A offers the widest coverage on the market today with a high level of performance and versatility from long wave through shortwave, VHF and onward to the upper limits of UHF and SHF.

Not only will the AR3000A cover this extremely wide range it will allow listening on any mode: NFM, WFM, AM, USB, LSB AND CW.

The high level of performance is achieved by using 15 band pass filters before the GaAsFET RF amplifiers unlike other receivers which may rely largely on broad band amplifiers. This ensures high sensitivity through the entire coverage with outstanding dynamic range and freedom form intermodulation effects.

An RS232 port is provided enabling full remote control via most computers. A rear panel switch changes control between the keypad and RS232 port. Two commercial IBM compatible software packages are available... ACEPAC3A & AOR Spectrum Coordinator.

The AR3000A is powered from 13.8V DC, a suitable mains power supply is provided with the receiver. Other accessories include a telescopic whip, DC lead and comprehensive operating manual.

Recommended Retail Price £765.00 including VAT.

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to build or not to build

Dear Sir
So what, if anyone equips his shack with the latest technological marvels?...if it gives pleasure of ownership and even impresses 'visitors' good for him, but whether it is good thing to advertise the fact in this envious and greed-ridden world we now live in is a matter for conjecture! Surely things are better kept to oneself?
David J. Gommo
Somerset

Dear Sir
I agree with you that people should be free to buy high power radio equipment. On the other hand, Paul does have a point. I feel that *SWM* could frighten off newcomers to the hobby with all the advertisements for receivers costing up to £4000, antennas costing £135, etc. Listeners without long pockets have little alternative to getting out the soldering iron and building their own equipment. *SWM* does help with this (e.g. Ian Hickman's current series of the 3.5MHz receiver), but perhaps you should run a series of articles on radio for the impoverished.

I could not help wondering whether your remarks crushing Paul were a mite affected by self interest. After all, we appreciate you have to keep the advertisers sweet and there is little profit in self-build!
Taff Rees G3IQY
Surrey

Dear Sir
Whilst I can fully understand amateurs who have spent years building their own equipment settling down to a more sedate life in their older years and purchasing commercial equipment, it is typical of the younger generation and those with a good credit status to want the apparently best equipment from the start.

My interest in wireless started at the age of eight, in 1943, when my grandfather built a working crystal set, which he supplied in full working order, complete with headphones. I subsequently learnt the importance of an efficient antenna and earth system. I built a one and then a two valve battery receiver.

With reference to the editorial comments to Paul Beaumont's letter I must point out that am acquainted with a professional musician who not only made his own violin, but continues to play it today.

My other hobby being photography I built my own camera and enlarger. They were not built from a kit.

Photography has to a great extent taken over from amateur radio for the last twenty years when I let my G call lapse. I have thought many times of renewing my licence but have been deterred by the antics and attitudes of the differing generations of radio amateurs.
Derek Fisher ex G3LKO
Bexleyheath

Dear Sir
May I remind Mr Beaumont that the front cover of *SWM* contains the clear indication: "For the Radio Listener". It matters not how you listen, the editorial content of the magazine should be based on achieving and sustaining that listening pleasure.

Mr Beaumont mutters about elitism. There is no more self-appointed elite in short wave radio that the "I built it myself from cocoa (or should that be baking) tins and my trusty old ex-WD soldering iron".

I took great pleasure in seeing Mr Rayer's station. My only complaint was that the editorial coverage offered was cursory; as a result I have spent many instructive hours studying the cover photograph, and wondering how this piece links up and how that equipment performs.

Three pages of such information would be worth more the the radio *listener* (my italics) than the endless succession of article on building novel receivers. Surely this sort of article, commendable though it may be, belongs in your sister magazine, to leave space for more of your excellent and much valued specialist regulars on s.s.b., utilities, airband and the like.
M.F. Wright
Hoyland

Dear Sir
I have been an s.w.l. since 1938 and in the '50s held QSLs from around 300 countries, plus several certificates. Why is it presumed elitist to employ technology presently available? I presume Mr Beaumont has constructed his own telephone and TV set and, of course, did a mechanical engineering course before driving a car built from a kit?

There are a multitude of interests to be obtained from this hobby of ours. Those who wish to construct derive much satisfaction from the success of their efforts. Those who search for rare transmissions are just as fulfilled. Studying for my own disciplines in medical research, I have had little spare time, or wish, to construct - but have preferred to utilise my few spare hours in searching and listening. I must also suggest the soldering iron is better positioned on the work-bench, not on the operators table. My hobby has always been for pure enjoyment and relaxation, not for impressing anybody, although my present set-up is probably as comprehensive as the one that displeases Paul Beaumont.

Live and let live, Paul. There are so many aspects of this hobby and you'd be surprised how many real specialised experts I have met, in 50 years of radio, who never touch a soldering iron but have contributed considerably to our knowledge and enjoyment.
H.L. Spindler G7603
Kings Langley

Dear Sir
With respect I must take issue with the Editor's comment following Paul's letter. Self-education is neither the princely duty nor the unique domain of transmitting amateur radio operators. Most reasonably intelligent people, whatever their occupations and interests, seek to improve their knowledge. I'm sure that the average short wave listener improves his or her knowledge of the hobby - and beyond it - by virtue of the hobby's very nature, and even more so if he or she either builds or modifies the associated equipment.

Some of us seem to be promoting the idea that those who transmit are superior to those who receive! But perhaps even worse, and as described in recent issues of a sister magazine, is the fact that some RAE-qualified, full-licence, transmitting amateurs tend to avoid contacts with those operating under the 2E0 novice callsign. I would further add that I have all but given up monitoring mobile 144MHz operators on the local North London repeater because of their generally bad language and poor R/T procedure. It would appear that all people are equal, but some are more equal that others!
Ivor Nathan
London

Dear Sir
The ability to make all your own equipment must be very enjoyable and rewarding. However, you can't surely want to ban everyone who isn't capable of building their receiver from scratch, can you?

Being a student I have a limited time to spend on my hobby. Even if I had the knowledge to build my own radio, I wouldn't have any time left to listen!

I want to listen to as much as I can - from catching the news from around to world, to hearing aircraft on the h.f. bands. Much as I would love to be an electronics whizz-kid, I'm not. Surely this doesn't need to be a qualification to listen!
Andrew Middleton
Okehampton

We hope you have enjoyed reading our extended postbag this month. These subjects obviously created plenty of thought-provoking comment! - Ed.

Sony ICF-SW7600 Receiver

New models from Sony always attract plenty of attention. The ICF-SW7600, reviewed here by Howard Bird, is no exception.

Innocent readers out there are probably thinking that the ICF-SW7600 is the latest version of the popular ICF-7600 - wrong! Well perhaps it's a variant of the ICF-7600DA - wrong! Surely it must be close to a ICF7601 - wrong!! As far as I can tell, the forerunner to the ICF-SW7600 was the ICF-7600DS! Why, oh why, do we have to suffer such a confusing numbering system? Please, please Mr Sony get your model numbers sorted out. Now that's out of my system, let's get on with the review.

The real ICF-SW7600 is a multi-band portable receiver featuring continuous short wave coverage from 1.6 to 29.995MHz plus the normal long, medium and v.h.f. bands. As well as standard a.m. and f.m. modes, the ICF-SW7600 includes an improved s.s.b. mode. All this in a unit measuring 191 x 118 x 32mm is likely to make the ICF-SW7600 very popular with short wave listeners.

Self-explanatory

The layout of the ICF-SW7600 was pretty self-explanatory, making it very easy to get started without having to plough through the manual. Whilst on the subject of the manual, this was well up to Sony's usual high quality. The one supplied with the review model was a compact booklet written in English, French, Spanish and Arabic. Each of the sections being allocated approximately thirty-five pages. Operation of the various features was covered in good detail with plenty of diagrams to clarify the tricky bits.

Power for the ICF-SW7600 could be supplied either from dry cells or an external source. The dry cells fitted into a conventional battery compartment in the rear panel. If using an external power source such as the supplied a.c. adaptor, connection is made via a coaxial socket on the side panel. The requirement is for a 6V d.c. supply. Sony can supply an optional car adaptor that fits into a standard cigar lighter socket.

Antenna Options

The antenna options available were really very comprehensive. As you would expect with a portable receiver there were internal antenna systems to handle all the various reception bands. Long and medium wave bands utilised an internal ferrite bar whilst v.h.f. and short wave used a conventional telescopic antenna. For the more serious listener the ICF-SW7600 included an external antenna socket. This was a conventional 3.5mm jack that automatically disconnected the internal telescopic antenna. This switching is essential in order to minimise interference and get the best from an external unit.

For the traveller a very compact wire antenna was supplied. This comprised a neat plastics drum containing about 6m of thin wire with a fixing clip at each end. This proved to be a very quick and easy way to set-up a simple but effective antenna. For the more ambitious listener the Sony range includes the AN-1 and AN-102 active antenna systems. These provide a very compact external antenna designed to interface with the ICF-SW7600. However, I suspect that most operators will choose to construct their own long wire antenna. This works fine with the external antenna socket. I would not advise using a very long antenna due to overload problems. These problems are not unusual in this type of receiver and can usually be controlled using the DX/LOCAL attenuator.

If you like to record you favourite stations the ICF-SW7600 has dedicated Tape Out and Remote sockets. This means that you can use the internal timer to turn the radio on and start the cassette unit.

Finally for those who prefer to use headphones for DX work, a standard 3.5mm stereo jack is fitted to drive 16Ω phones.

Versatile Tuning

The provision of digital tuning has been well utilised in the ICF-SW7600. By far the quickest way to get to a particular frequency was to use the direct entry mode. Using this system you simply typed-in the required frequency on the numeric keypad. As you could use this system to directly select any frequency in the ICF-SW7600's range, it was extremely quick. The only odd point about this system was the requirement to enter trailing zeros. If you wanted to tune to 7.3MHz you had to enter 7300. Not really a big deal, but a point worth noting. Incidentally, if you made a mistake you were greeted with a clear error message on the display.

For those of you who prefer manual tuning this is provided in the form of a pair of tuning buttons. These are marked + and - to give step changes in the tuned frequency. The size of the steps were dependant on the selected frequency range as follows: long wave 3kHz, medium wave 9 or 10kHz, short wave 5kHz, f.m. .1MHz. The selection of 9 or 10kHz steps for medium wave was done using a small slide switch in the battery compartment. To give some interpolation tuning between

the, rather coarse, tuning steps a fine tune control was provided. This took the form of a small edge control on the side panel. Once this had been turned-on using an adjacent slide switch, it gave an approximately 7kHz fine tuning range. Incidentally, this facility was not available on f.m. For the broadcast enthusiast you could use the + and - buttons in association with the BAND button to step between short wave broadcast bands. Once you had selected the required band you could then use the scan tuning facility to automatically search for active stations. When a station is detected that exceeds the pre-set threshold the scan pauses for about one and a half seconds before moving on again. You were able to stop the scan at any time simply by pressing the SCAN button a second time.

For listening to your favourite stations it's handy to have a few memories. The ICF-SW7600 features ten pre-sets that can be used to store frequencies throughout its operational range. Programming and recalling these memories was extremely simple requiring only one or two key presses. Personally, I thought ten memories was a bit mean for a receiver with such a wide coverage.

SSB Reception

The provision of s.s.b. reception opens up a whole new world to the ICF-SW7600 user. In addition to being able to receive phone transmissions you can also use the ICF-SW7600 for utility stations. Selecting s.s.b. reception is done by a small slide switch on the side panel. This has positions for receiving either upper or lower sideband signals. Because of the coarse 5kHz tuning steps, you have to use the fine tune control to resolve these signals. Although this basically worked fine, I found the fine tune control rather fiddly to use.

The provision of s.s.b. reception also opens up the world of utility data transmissions. To receive these you will need some form of external decoder and there are a wide range of options

available. Although a 'record out' jack was provided the 0.775mV level was too low to drive a decoder direct. The only alternative is to use the external speaker socket, but this has the disadvantage of disabling the internal speaker. I did try receiving a number of different modes with the ICF-SW7600. The performance was OK when dealing with transmissions using a wide shift, but the narrower shift amateur and TOR signals were very difficult to tune accurately. The problem was with the fine tune control which was very difficult to use with any degree of precision. This inadequacy was disappointing as it limits the usefulness of the ICF-SW7600.

Good Layout

One of the first points to strike me when I took delivery of the ICF-SW7600 was its excellent layout. Despite the wide range of facilities the layout of the controls has been kept very user friendly. As can be seen from the photograph, the front panel is very clean cut. The direct entry keypad has a good positive feel with the buttons standing just slightly proud of the panel. One of the problems of push-button operation is the ease with which settings can be disturbed. The Sony tackles this problem with a key protect facility. When this is activated the front panel buttons are disabled. To ensure that the key protect cannot be operated accidentally, the operating button was recessed below the main panel.

With the power on-off button being a simple push button affair also on the front panel, there was a risk of flattening the batteries during transportation. This was protected by an interlock system that prevented the power being turned on.

In Action

The acid test with any receiver comes when using it to listen around the bands. For use on the broadcast bands the ICF-SW7600 performed very well. I found the various tuning options worked well to make tuning around quick and trouble free. I would have liked to see more memories included, around twenty or thirty would do. My disappointment was with utility listening, where the small fine tune control made accurate tuning extremely difficult. Although narrow shift signals could be received, it was a very fiddly operation.

Moving on to the audio performance, the ICF-SW7600 gave a surprisingly good performance. I say surprising because of its small physical size. This would usually result in a rather thin tinny sound. Somehow, Sony have managed to squeeze a remarkably mellow sound quality from the ICF-SW7600.

Summary

The ICF-SW7600 is a very smart and compact receiver that I'm sure will prove very popular with broadcast fans despite the small number of memories. Whilst it has the potential for use with utility data modes, the poor fine tune control is a limiting factor.

Providing you don't need more than ten memories the ICF-SW7600 is certainly a powerful contender in this competitive sector of the market.

My thanks to Sony UK for the loan of the review model. For those interested in the ICF-SW7600 it can be obtained from all Sony outlets and costs £149.

Specification

Frequency Range:	v.h.f.	76-108MHz (f.m.)	
	l.w.	150-528kHz	
	m.w.	530-1610kHz	
	s.w.	1.615-29.995MHz	
Antennas:	v.h.f. & s.w.	Telescopic	
	m.w. & l.w.	Ferrite bar	
Audio Outputs:	400mW at 10% t.h.d. 0.775mV tape out.		
Speaker:	77mm dia.	**Phones:**	16Ω stereo
Power Supplies:	4 x R6 (AA) cells; a.c. adaptor 110, 120, 220 or 240V 6V d.c. external supply		
Dimensions:	191.2 x 118 x 32.3mm	**Weight:**	615g

NEVADA EVERYT

YUPITERU

MVT 7000 HANDHELD

★ Receives 8 to 1300 MHz 100kHz-1300MHz (at reduced sensitivity)
★ 200 Memory channels
★ Rotary or keypad freq. control
★ AM/FM/NFM
★ Large display with signal strength .....me

EACH SET IS SUPPLIED COMPLETE WITH:- Full set of high power NiCads, AC charger, DC power lead and carry strap.....**£289**

MVT 8000 MOBILE/BASE

This new model is the mobile version of the popular MVT 7000 Handheld above.
★ Receives 8 to 1300MHz, 100kHz to 1300MHz (at reduced sensitivity)

THIS RADIO IS ESPECIALLY SENSITIVE AT UHF FREQS. Set is supplied with mains power unit. **£299**

MVT 6000 MOBILE/BASE

An economy version of the new MVT 8000 above -housed in the same case.
★ Receives 25-550MHz, 800-1300MHz
★ 100 Memory channels

SPECIAL PRICE.....**£199**

AIRBAND RADIOS

This month we are pleased to introduce **THE WORLDS FIRST DEDICATED CIVIL/MILITARY AIRBAND RECEIVER, THE VT225.**

A powerful pocket scanner that leaves the competition standing. - A super sensitive set designed for optimum performance on the Civil/MilitaryAirbands.
★ Receives 108-142 MHz Civil Airband 222-391MHz Military Airband 149.5-160MHz Marine Band
★ 100 Memory channels
★ AM/FM on VHF
★ Priority channel function

EACH SET IS SUPPLIED COMPLETE WITH:- NiCads, earphone, carrying strap and mains charger.....**£229**

VT-125 UK CIVIL AIRBAND RECEIVER

Using the same technology as the VT-225, this set covers the full Civil Airband - hearing distant signals that are inaudible on some other scanners.
★ Covers 108-142MHz
★ 30 Direct entry memories
★ Search steps 25, 50, 100kHz SUPPLIED COMPLETE WITH NICADS AND UK CHARGER.....**£149**

FAIRMATE

HP2000

STILL ONE OF THE MOST POPULAR HANDHELD SCANNERS ON THE MARKET. Over the last year the HP2000 has outsold almost all other models.

★ Continuous coverage from 500kHz to 1300MHz
★ 1000 channels of memory
★ Keypad or rotary control
★ AM, FM and WIDE FM modes
★ Search steps from 5 to 995kHz

EVERY SET COMES COMPLETE WITH:- Full set of high power NiCads, 2 antennas, carrying case, earphone, DC cable, belt clip and strap, UK charger **£269**

MS1000 BASE/MOBILE SCANNER

MOBILE VERSION OF THE HP2000 HANDHELD BUT WITH SEVERAL ADDITIONS:-
★ Switchable audio squelch
★ Tape recorder output socket
★ Automatic - signal operated tape recorder switching
★ All metal case for improved EMC compatibility
★ Receives:- 500kHz - 600MHz, 805 - 1300MHz. Supplied with mains power supply. **£279**

AOR SCANNERS

AR1500 HANDHELD

Covers 500kHz to 1300MHz receiving NFM, WFM, AM, and SSB. Supplied with a large selection of accessories including:-
★ Charger
★ Dry cell battery case
★ 5 mtr LW antenna
★ Ear piece
★ Soft case

NOW IN STOCK.....**£279**

AR2002 BASE/MOBILE

Receives 25 - 550MHz, 800 - 1300MHz, AM, FM, WFM Super-sensitive receiver.....**£399**

AR2500 BASE/MOBILE

Receives 5-550MHz, 800-1300MHz AM, NBFM, WFM.1984 Memory Channels, Fast 36 CH/SEC Scan. Resolves SSB with BFO control **£399**

AR2800

★ Receives 500kHz - 600MHz, 800 - 1300MHz AM, FM, WFM. SSB capability with BFO.
★ 1000 Memory.....**£395**

AR3000A NEW MULTIMODE SCANNER **£765**

★ Receives 100kHz - 2036MHz. Modes:- USB, LSB, CW, AM, FM, WFM. Acepac 3 software now available, for use with IBM PCs and clones. **£119**

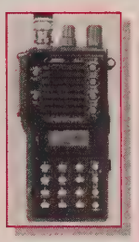
INTRODUCTORY OFFER

SUPPLIED WITH FREE WIDEBAND DISCONE WORTH £49.95

Note: This is a UK version from AOR and not a foreign grey import.

SCANNERS

ALINCO DJ-X1



HANDHELD SCANNER
★ Covers 500kHz to 130MHz
★ 100 Memories
★ AM/FM/WFM
★ 3 Scanning speeds

PLEASE NOTE:- ALINCO DO NOT INCLUDE BATTERIES AND CHARGER AT THIS PRICE. **£249**

PRESIDENT

BEARCAT SCANNING RECEIVERS NOW AT NEVADA!

NEW LOW PRICES

BEARCAT 50XLT

Popular beginners model!
★ 10 channel programmable
★ 66-88, 136-174, 406-512, MHz
★ Ni-Cad or dry battery powered
★ Ideal marine monitoring.....**£89.95**

BEARCAT 100XLT

Modelled on the ever-popular 200XLT but with only 100 channel memory capability and top frequency of 512MHz.....**£164.95**

All President range backed up by full in-house servicing facilities.

BEARCAT 200XLT

200XLT HANDHELD SCANNER

Still one of the easiest to use, and the most reliable scanners on the market, easy to program, sensitive receiver.
★ 200 memories
★ 66-88, 118-174, 406-512, 806-956MHz
★ UK charger/nicad pack supplied.....**£199.95**

BEARCAT 760XLT

A mobile/desktop version of the 200XLT above but with 100 memories. Supplied complete with mains adapter

SPECIAL PRICE **£194**

SONY

As a Sony Shortwave Centre we stock the complete range of Sony Shortwave products - here is a selection of the popular models.

ICF2001D

A full coverage shortwave, VHF, and airband radio (150kHz to 136MHz). Receives AM,FM, and SSB **£299**

SW77

One of the new additions to the Sony range,the SW77 covers 150kHz to 30MHz plus76-108MHz. With a rotary tuning dial,125 scan memories, reception of AM, FM, USB, LSB, CW, tape record facility, this is a superb all rounder.....**£349**

SW1E

Pocket shortwave plus VHF radio supplied with headphones, case and shortwave guide. This model won't hurt your pocket.! **£149**

SW7600

One of Sony's most popular VHF and Shortwave radios, 76-108MHz FM,150kHz - 30MHz Shortwave receives AM, FM, SSB.....Well Rated.!.....**£149**

AIR 7

Very popular, sensitive Airband handheld radio - lovely audio quality & large easy to use key board **£229**

NEW PORTABLE SONY SW55 MULTIBAND RADIO

Technically the best that Sony have come up with yet! Stable enough for FAX, yet easy enough to tune on SSB.
A dual-conversion receiver with excellent results, the SW55 is a real winner.
★ 150kHz-30MHz, 76-108MHz, all mode inc. SSB
★ 125 multi-function memories inc. world time clock/alarm
★ 4-way digital tuning inc. scan/manual/direct access

How do they get it all in? – Call now or come and see for yourself! .**£249**

AN1

An external active antenna with built-in pre-amp, covers 150kHz - 30MHz. Fully portable with easy to mount fixing brackets.....**£57.95**

AN3

Active antenna for Aircraft and VHF reception, suitable for Sony Air 7 and others. **£54**

NEVADA'S "BIRTHDAY CELEBRATIONS"

As part of our 23rd Birthday we have two great give-away s during the month of September

1 ***Free*** **PSU 101 Desk Stand/ Charger** (worth £30) with every handheld scanner!

2 ***Free*** **G5RV multiband antenna** with every shortwave receiver (worth £19.00)

SEND IN £2 FOR OUR NEW 72 PAGE COLOUR CATALOGUE (INCLUDES A £2 VOUCHER)

Access VISA

USE YOUR CREDIT CARDS FOR SAME DAY DESPATCH

ING FOR THE RADIO ENTHUSIAST

HUGE STOCKS - FAST DELIVERY - PERSONAL SERVICE

NEVADA COMMUNICATIONS, 189 LONDON ROAD, PORTSMOUTH P02 9AE

TELEPHONE HOTLINE: (0705) 662145 FAX: (0705) 690626

SCANNER ACCESSORIES

LOW NOISE PRE-AMPLIFIERS

These new pre-amplifiers are a must for the scanner enthusiast and will allow reception of signals that were inaudible without them.

MODEL M75

For base and handheld scanners
- ★ 25-2100MHz
- ★ Low noise GaAs FET
- ★ Selectable filters for optimum performance
- ★ Variable gain/attenuation control..... **£69.95**

MODEL M100

Same specification as the M75 above but with full RF switching. May be used with transceivers of up to 5 watts RF output Ideal for the latest TwinBanders **£79.95**

TWO-WAY REMOTE MASTHEAD SWITCH

Uses one coax feeder to the masthead and remotely switches between 2 antennas with this unit. Very low loss up to1.3GHz. Uses Greenpar N type connectors **£44.95**

JIM PSU101 MK IV

A combined desk stand and power supply/charger for handheld scanners. Suitable for most popular models. Special versions now available please call for more details..... **£29.50**

JIM BHA3

Desktop stand for handheld scanners..... **£9.95**

JIM CH-A4

Mobile holder for use with handheld scanners in the car **£6.95**

SCANNING ANTENNAS

NEW

NEVADA SCANMASTER (500 kHz - 1500MHz)

New high quality wide band receiving antenna uses fibre glass/stainless steel, with 4 small radials. 'N' type connector. Length 1.1 metres..... **£39.95**

WB1300 DISCONE (25-1300MHz)

Stainless steel top of the range 'N' type connector. Complete with short mounting pole and clamps "8 elements with vertical whip" – complete with short mounting pole and clamps etc etc. Best value at **£49.00**

MICRO-SCAN (180-1300MHz)

New low cost ground plane antenna..... **£12.00**

SKYBAND (25-1300MHz)

Stainless steel economy wideband Discone recommended – bargain price only..... **£24.00**

LOG PERIODIC BEAM (105 - 1300MHz)

20-element wideband beam - can be used for transmit on VHF/UHF amateur bands. 12dB fwd. gain..... **£135.00**

DIAMOND D707 (500kHz - 1500MHz)

A base antenna with 20dB pre-amp 3.5ft long fibreglass with mounting kit. Requires 12V DC supply. **£99.00**

DIAMOND D505 (500kHz - 1500MHz)

Mobile version of the D707 superb antenna. **£69.00**

TELESCOPIC SCANNER ANTENNA

(BNC)..... **£5.75**

RUBBER DUCK SCANNER ANTENNA

VHF/UHF (BNC) **£11.95**

ICOM

ICOM We carry a varied selection of the Icom range of Amateur radio products including all of their latest models. However should you want something which is not in stock PAUL can get most things within 24 hours! (subject to availability). Icom have been known over the years for their Quality and Performance, here is just a small selection of their vast range!

IC R7100

Covers 25 - 2000MHz. Includes 900 memory channels with all mode capability. Five different scan options and an automatic record facility, what more you ask? Full brochure available. Special offer **£999**

IC R72

Covers 100kHz to 30MHz on the HF Bands and offers all mode reception (FM, with the optional board) Easy to use and idealy suited to the new comer. A full 99 memory channels with scan facility and a 10dB pre-amp fitted as standard **£589**

IC R1

Icom's most popular pocket-sized wideband scanner Frequency from 150kHz to 1300MHz with 100 programmable memories. AM, FM and WFM Modes. Sleep timer and clock facility Optional NiCads, carry cases, and fast chargers are available. **NEW LOW PRICE** **£329**

IC R100

Mobile or base extra wideband scanning receiver covering 500kHz to 1.8GHz with 100 memory channels and receives AM, FM & WFM Modes..... **£475**

PHILLIPS D1875

Shortwave receiver covering all the major shortwave broadcast bands **SPECIAL PRICE** **£49.95**

KENWOOD

R2000 RECEIVER

A good 'Middle of The Road' Receiver giving general coverage receive from 150kHz to 30MHz. Built in clock and timer facility. Ten user programmable memories Optional VHF Converter (Secondhand models usually available) **£499**

R5000 RECEIVER

Based on the receive section of the TS440S HF Transceiver both in looks and design this model covers 100kHz to 30MHz all mode, 100 memories and facility for optional filtering. **RECOMMENDED**..... **£ CALL**

SHORTWAVE RECEIVERS

LOWE HF-225

Receiver (30kHz - 30MHz) Optional extras inc FM/AM detector, Ni-cads, Speaker, Case & Active Ant. Long standing favourite. Quality filtering included. **£439.00**

LOWE HF-150

Receiver Economy model but with an excellent set of ' **EARS'.** LCD display. Portable or Mains Power **£329.00**

NRD-535

Japanese top of the range general coverage receiver, 0.1 - 30MHz Lots of Options available..... **£1115**

DRAKE R8E

Don't let its looks fool you – this is a top-class receiver direct from the States and a company known for its quality and reliability. 100kHz-30MHz supplied as standard (no hidden extras) with all filters and syncronas detector.
Recent reviews agree – the performance of the R8E is second to none and still under £1000.00! Only..... **£965**

DRAKE R8 VHF CONVERTER

In-board convertor giving: 35-55MHz and 108-174MHz..... **£195**

DRAKE MS8 MATCHING EXTERNAL SPEAKER

Improves audio reproduction..... **£49.95**

DRAKE COMPUTER CONTROL

Drake software now in stock (for IBM PCs and clones)..... **£59.95**

*For those of a technical nature, a full technical manual is now available **£29.95**

SANGEAN ATS803A

Full short wave coverage portable receiver with FM stereo. 14 memory channels, 12 shortwave broadcast bands..... **£109.95**

STEEPLETONE MRB7

Multi-band Radio. This radio will appeal to both Aircraft Enthusiasts and the Marine Monitors.The multi-band 'jumbo' radio has almost everything you need to monitor these bands. LW, MW, & SW plus the Marine and Aircraft Bands... Good Starter! **£69.95**

TRADING POST

We buy as well as sell new & used radio equipment, please feel free to call Paul or John for instant quotes on P/Xs and Buy-ins

Yaesu FR101 Receiver c/w Ext.Spkr Ham Bands only.Ex.Cond..... **£275.00**

Marc2 'Hipster' Receiver150kHz-520MHz all-mode.Boxed V G.C **£199.00**

Trio R1000 S/W Receiver. Digital Display with timer V. Clean..... **£350.00**

Trio R2000 Rx. Good middle of the road receiver.Avg. Cond. **£450.00**

Icom R72 Gen. Cov. RX almost new still U/Gtee. Bargain **£500.00**

Yaesu FRG7 Good old FaithfulReceiver. ...Still Going! **£175.00**

Realistic Pro37 200 Channel H/Held Scanner.As new..... **£175.00**

Sony Air7 Handheld Airband Receiver. offers around. **£185.00**

Nevada MS1000 Base/Mobile Scanner. Exc. Cond. G/Tee..... **£215.00**

Regency 7000 Base/Mobile Scanner. V. Sensitive Radio..... **£215.00**

Fairmate HP2000 'The ultimate' in handheld scanners full 1000 memories. v.g.c. but tatty box **£215.00**

AOR AR3000A The best base station scanner money can buy All mode 150kHz - 2.1GHz Ex-demo model **£699.00**

Yupiteru MVT-7000 c/w PSU101 supply/stand. **Avg.cond** G/teed fully tested mode **£220.00**

Alinco DJ X1 The latest model in excellent condition with box and all manuals incl. Frequency book G/teed **£225.00**

Bearcat 200XLT. Old favourite easy to use with 900MHz and nicad **£140.00**

Replacement Nicad Pack – for the Bearcat 200XLT + Bearcat 100XLT..... **£29.95**

Signal R535 airband receiver – known to be good **£175**

VT-125 II pocket airband scanner 30 memories and search **£95.00**

Sony Pro80 handheld receiver c/w UHF Conv. Gtee..... **£199**

THIS MONTH'S SPECIAL P/X DEAL

Get the very latest in handheld scanning receivers – the AR1500, by part exchanging any of the following:-

Fairmate HP100, HP200 & HP2000,
AOR 1000, 2000, 850 & 900s
Yupiteru MVT5000, 6000 & VT125s
Bearcat 200XLT, 100XLT, 100XL, 50/55XLTs & 70XLTs

Call us now – even if we haven't listed your radio, for what we know to be unbeatable P/X deals.

BOOKS...BOOKS...BOOKS...BOOKS

Shortwave Confidential Frequency List. Lists 0-30MHz Freqs. **£8.95**
VHF/UHF Frequency Guide A real must for serious users **£5.95**
Marine Frequency Guide Near the coast? Ideal book **£4.95**
VHF/UHF Airband Guide At last, now back in print..... **£6.95**
Scanners 2 by Peter Rouse,Both books full of good info..... **£8.95**
Scanners 3rd Edition **£10.95**
Short Wave Communications. Renowned contributor to the popular Short Wave Magazine **£8.95**
Air Traffic Radio 1991 (updated for '92)..... **£3.95**
Sounds Easy Guide to Britain's Radio Stations..... **£2.95**
Flight Routings Guide Book (1992 version)..... **£4.95**
UK Scanning Directory Everything you wanted to know but were afraid to ask **£14.95**

Directory of Military Aviation Communications.

Space Shuttle operations, War games, in-flight refuelings, interception of Soviet **BEAR** Recon-Bombers,Military Airshows, secret coded transmissions, these are only a taste of what's in store in this publication. Frequency, Locations & some maps for Europe & North Africa are included for reference **£17.95**

Communications Centre (Photo Acoustics Ltd.)

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58 High Street, Newport Pagnell, Bucks MK16 8AQ. Tel: (0908) 610625 FAX: (0908) 216373

New! AR1500 with SSB New!

Only £279.00 p&p £5.00

Specification

Model...	AR1500
Receiver coverage...	500kHz-1300MHz
Receiving modes...	AM, FM(narrow) FM(wide) and SSB with the BFO switched on (USB, LSB and CW)
Number of memory channels...	900 plus 100 reserved for 'auto-memory' in bank 9. 1000 total (10×100)
Scan rate...	20 channels per second (approx)
Number of scan banks...	10 total. Bank 9 reserved for 'auto-memory'
Scan delay time...	2 seconds (approx)
Search banks...	9 standard search banks plus one search bank for the automatic search pair of bank 9.
Search rate...	20 steps per second (approx)
Search step size...	Programmable in 5 and 12.5kHz steps to a maximum of 995kHz (i.e. 5, 10, 12.5, 15, 20, 25, 50kHz etc)
Priority channel (AUX)...	Any one of the 1000 memories may be used as priority. Sampling is every 2 seconds (approx)
Receiver sensitivity...	FM(narrow) 0.5µV or better for 12dB SINAD across most of the range AM 3.0µV or better for 10dB S/N across most of the range SSB 1.5µV or better across most of the range
BFO range...	Continuous -4kHz–+6kHz (approx)
Aerial connection...	One 50 OHM BNC socket on top case
Audio output...	>100mW @ 10% distortion
Power requirement...	6V DC from built-in NiCad battery pack or 11-18V DC from CHG jack or 4×AAA dry cells (dry case provided)
Power consumption...	100mA approx
Size...	55mm (W)×152mm (H)×40mm (D) approx excluding projections
Weight...	360g approx including NiCad pack
Display...	Liquid Crystal (LCD) with switchable light for areas of low level lighting

**Specifications subject to change without notice due to continuous development of the receiver.* E&OE.

ALINCO's £249.95

"Professional Grade" Scanner

DJ-X1. 500kHz-1.3GHz

"A Scanner of Unrivalled Performance"

Specification:

Modes:	AM/Narrow FM/Wide FM
Steps:	5, 9, 10, 12.5, 20, 25, 30, 50, 100kHz
Antenna:	50Ω BNC
Supply:	6-15V DC (Internal 9V AA) 24mA (Battery save.)
Dimensions:	110 x 53 x 37mm
Weight:	370g
Configuration:	AM/FM Triple conversion
Sensitivity:	NBFM -8dB (12dB SINAD) AM -2dB (10dB S/N)
Memories:	100 in banks.

Up until now most handheld scanners have been large and cumbersome with low grade plastic cases using technology that has been around for several years. The arrival of the ALINCO DJ-X1 has changed all that. This brand new receiver is ruggedly built, compact, and above all, ultra sensitive. ALINCO are the first major manufacturer of communications equipment to produce a new generation of scanning receiver. All of a sudden its competitors seem drab, old fashioned and lacking in sparkle and performance.

The new exciting DJ-X1 is available now. Try it out for yourself, experience the superior design and performance. Compare it with "yesterday's" models and find out just how far advanced the new ALINCO scanner is! But just to wet your appetite, here's a few of its features:

★ 3 scanning speeds ★ 3 scanning modes ★ 100 memories in 3 banks ★ Auto memory loading ★ Priority channel ★ Dual rate battery saver ★ Large battery pack ★ Rotary frequency control ★ Illuminated key pad ★ Auto illunication mode ★ Dual antennas ★ 5 programmable bands ★ Widest range of frequency steps ★ Super front end sensitivity ★ Memory lockout ★ Mode scanning ★ Auto power off ★ Wide range of battery packs ★ Wide range of accessories ★ Intelligent mode programme ★ Rapid tuning rates of 1MHz/10MHz.

***Each unit now comes with the UK Gold Seal Warranty. Look for the sign on the box!**

SONY

ICF SW77 £349

150kHz-30MHz + stereo FM AM/SSB/CW

The SW-77 is the latest short wave portable from Sony. It integrates computer technology to provide a programmable data base of station names in its memory bank. Also included are 5 different timers and 162 preset stations. Fabulous!

HF-150

COMPACT COMMUNICATIONS RECEIVER

£329 INC VAT

Designed as a logical alternative to the Japanese 'push button portables', the HF-150 places a 'real radio' within your price reach. With simplicity of operation, the HF-150 nevertheless has all the features and facilities you need. This truly is 'Real Radio'.

The NEW AR3000A is an evolutionary step onward from the highly acclaimed AR3000 and many major improvements have been implemented at the request of enthusiasts. The AR3000A still covers an extraordinarily wide range from 100kHz-2036MHz without gaps and offers ALL MODES: AM, NFM, WFM, USB, LSB & CW. The LCD is larger and the viewing angle has been changed to further improve visibility. SCAN and SEARCH speed has been greatly increased and new programmable DELAY, PAUSE and PRIORITY facilities have been added. The rotary tuning control is 'free running' to increase user friendliness for SSB/CW listening. Memory clear and microprocessor reset are now available from the front panel.

£765 inc VAT

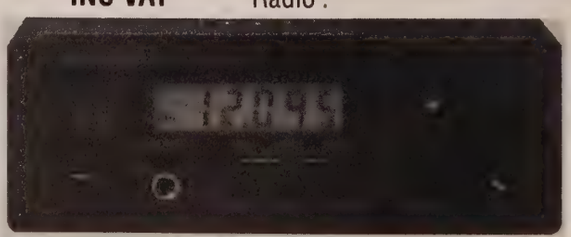

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PHOTO ACOUSTICS

Shacks I Have Used

John Worthington G3COI dislikes anything permanent. That is why, he maintains, he has never had a purpose-built shack.

Constant modification is my abiding characteristic - indeed this is a trait common to many amateurs! Anyway, even though most of my shacks over the years have been intended for other purposes, they have, nevertheless, been anywhere from mildly satisfactory to just tolerable.

For a few years I was in a failing glass-clad verandah - no that's not a spelling error, but it was always on the point of falling. In the winter I operated there from inside 'arctic gear' and endured the fumes from two paraffin stoves. The latter caused me to give up smoking when I couldn't tell whether I'd got a fag on or not. One of the warmest places I had was a box room - quite tiny with a huge copper cylinder which gave off bags of Fahrenheit through inadequate insulation. It was here that I learned to operate the dials and knobs with my nose and became the standard W. C. Fields look-alike in the local dramatic society. I was obliged to sit on the main power pack and used to fall out of the door at the end of an operating period completely seized up, except for a little wrist movement.

My first ever place was in the roof attic of a large Victorian shop and as our living quarters were in the basement I always suffered from indigestion and heavy panting during the first two QSOs. I learned to shrug off criticisms such as 'Your audio is very breathy and dyspeptic, Old Man'.

In those days the first year of one's licence was c.w. only, so my first QSOs were painful because of the stitch. It was another manifestation of 'brass arm' I suppose. It was quite a nice shack though and through a crack in the fanlight one could see the glorious panorama of Wolverhampton with its lovely hues of black, grey and khaki. Antenna fans will please note that I was end feeding 130ft of wire from a height of 50ft - something not many people have done in their life. The intercom with the XYL down below was a piece of cord that I attached to my ankle. As you can imagine, total peace was easily achieved by omitting to attach same, only doing so when the distant sound of panting footsteps approached.

Another house we moved to was just as big, but being a modest chap I hankered for the compact premises and chose what had been the coal house. It had a nice smell of small nuts and Welsh large and I soon hammered up a few shelves and installed my humble stuff. There was a window high on the outside wall and by standing on the operating chair one could see the rolling Shropshire countryside. Later I installed a wing mirror so that I could do this without the gymnastics.

The main snag with this shack was acoustical. There was a high ceiling, which was open to long corridors, etc. and when bellowing into the mic - I was always short of audio in those days - I produced reverberations and echoes to rival Winchester Cathedral. They caused numerous misunderstandings during my phone QSOs and for a long time I was obliged to use c.w. only.

Living Room

There was a time when instead of a shack I actually had my gear in the living room. The XYL tolerated this for a short time before fitting a curtain around it, so when operating all you could see from the layman's side was a bulge slightly moving. It was like tent operation and left me with a desire - never been fulfilled - to partake in National Field Day.

I must say that frequent scrutiny by the XYL used to put me off somewhat. Not so much because of having to modify my language, but having to keep the standard of tidiness she required became onerous. This inhibited my natural inclination to have several projects partly finished and ready to be re-attacked at any time.

Tobacco Tin QRP

Many years later I again had the gear in the living room, but instead of a curtain this time she nagged me to reduce its size until, eventually, I was using a QRP outfit that would have fitted into a tobacco tin. In fact I believe that the *Practical Wireless* article from which it sprang specified just such an enclosure!

Interestingly I have two shacks at present and one of them is again in the living room. This is rather untidy at best, so what has happened to the XYL's opinions? The answer is simple enough - the realisation is that after 46 years she has declared me to be the winner!

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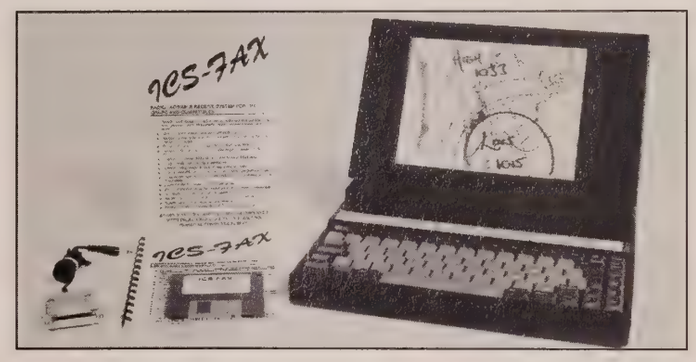

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First Aid

Could anybody please supply me with an owner's manual and circuit diagram for the Yaesu FRT-7700 antenna tuning unit? Willing to pay all costs. **Graeme Wilson, PO Box 255, Stoke-on-Trent, Staffs ST4 2DN.**

I am trying to restore an old Philips Radio, which I believe dates from the mid-thirties. I sorely need a circuit diagram plus any additional information that may exist about the radio. My job is compounded by the fact that someone, sometime, tried to repair the radio and made an absolute mess of it, snipping out wires, shorting components, etc. The model number is Type 534U and the serial number is E1715E03. The number 25997 is stamped on to the chassis itself. The name 'Multi Inductance' appears on a tag on the rear of the radio and seems to be a logo/trade name of sorts. There are seven valves in it and the pins are all of the side contact variety. **John Wynee, 74 Stoneyhirst, Dooradoyle, Limerick, Ireland. Tel: 010-353-61-29011.**

I have a Digitar weather station in my shack and it is very good apart from one irritating thing, which is that it gives the barometric pressure in inches of mercury and millimetres of mercury and not millibars as we use over here. This is, I think because the Americans, who make the Weather Master, don't appear to have gone metric yet. I have spoken to ICS (who were very helpful) and Digitar (who seemed amazed that I should ring them from the UK), but neither of them could come up with the answer to my question which is: Is there an easy method of changing the chip to read millibars instead of millimetres of mercury?

There was a rumour that a man in Oxford had found a way of re-programming it, by entering a certain combination of figures when setting the device up. I wonder if it's true. If it is, does he read *SWM* and if so, PLEASE will he (or anyone else come to that) tell me how to do it? I know that I can multiply inches of mercury by a constant of 33.86 and get the correct answer in millibars, but it would be so much nicer if it happened automatically. **Mike Hack G8SLU, Anmee, The Ride, Ifold Loxwood, Billingshurst, West Sussex RH14 0TF.**

A couple of months ago I purchased an ex-military communications set, namely a Pye Marine m.f./h.f. AP.100339, serial number PYM.4638 and I would dearly love to have a copy of the circuit diagram and if possible a copy of the service/user manual. I would also like to know if the crystal switch on the front is for calibration or filter use and what crystal should be plugged in as the set came without it.

If anyone has an outdated copy of the WRTH they would like to sell then I would be very interested. Any costs incurred with the above will be fully reimbursed. **J.I.G. Roland, United Farm, Releath, Praze-An-Beeble, Camborne, Cornwall TR3 7DT.**

Printed circuit boards for *SWM* constructional projects are now available from the SWM PCB Service. The boards are made in 1.5mm glass-fibre and are fully tinned and drilled. All prices quoted in the table include Post and Packing and VAT for UK orders.

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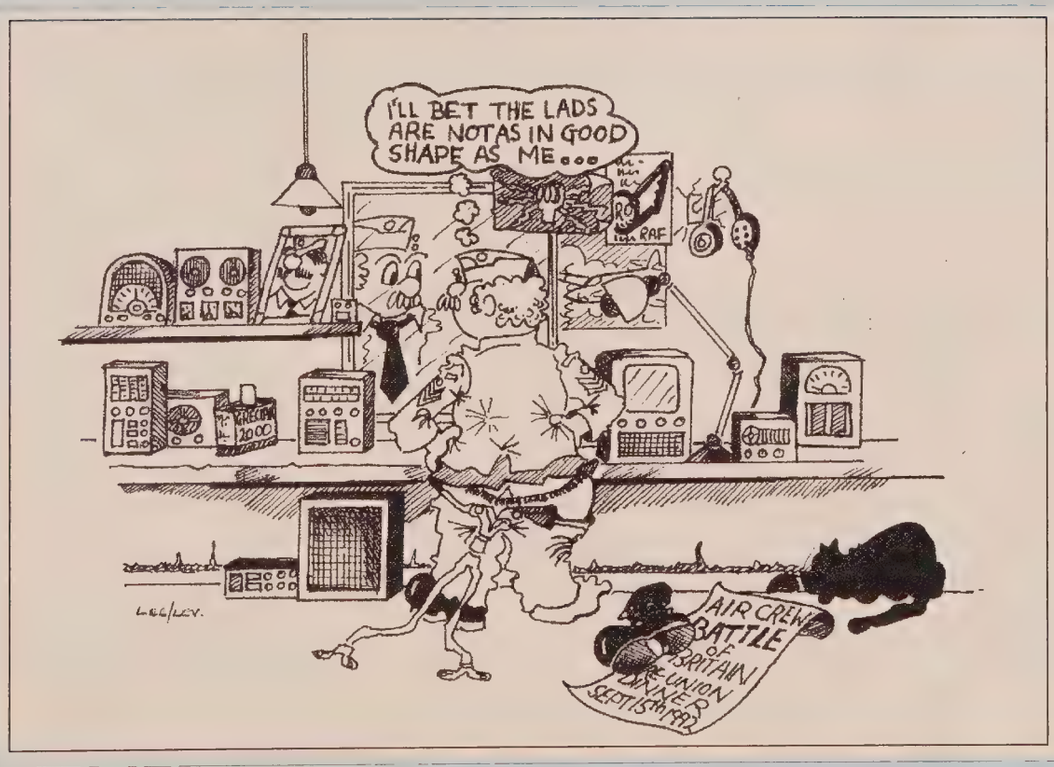

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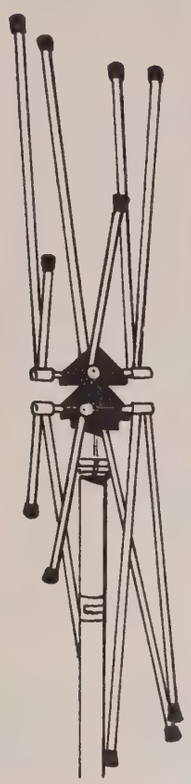

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C.M. Howes CTU30 ATU Kit

An a.t.u. will match your stations receiver and antenna. The staff of Short Wave Magazine *have been looking at the C.M. Howes Communications CTU30 a.t.u. kit.*

This simple a.t.u. is designed for use with short wave receivers and low power (30W) transmitters. One of the main attractions of this kit, (apart from the price) is the use of a p.c.b. to mount all the components. This greatly simplifies the problem of mounting tuning capacitors that are at r.f. potential.

Circuit Description

The a.t.u. utilises a 'T' configuration with two variable capacitors and an inductor with twelve taps, selected by a rotary switch. The balun mounted on the p.c.b. enables the a.t.u. to match balanced or unbalanced antennas to 50 or 75Ω

Construction

The kit was well packed and included everything except the metal box. All you need to build the kit is a standard electronics tool kit and some resin-cored solder. The instructions were comprehensive and up to Howes' usual standard, including a section on soldering for first time kit builders.

The main inductor uses a novel method of construction. A pre-cut and stripped length of ribbon cable is soldered to the p.c.b., the p.c.b. tracks complete the turns and provide the tapping points. Tip when fitting the ribbon cable - solder only the two outside wires at each end to start with. This is holds the cable, but makes it easy to adjust the position if necessary. The range switch and air-spaced Jackson variable capacitors are all mounted on the p.c.b. The range switch also uses a short length of pre-striped ribbon cable to connect one row of pins to the board. Winding the balun can be a bit fiddly, but is easily achievable with a little care and patience.

The completed kit should be mounted in a metal box for best results. The only point to watch is that you should leave plenty of clearance around the variable capacitor shafts as they are at r.f. potential. You may wonder why this precaution is necessary. Well, if the unit is used with a transmitter, high r.f. voltages may be present on the capacitor shafts under certain load conditions. Even if you are only intending to use the a.t.u. for reception it is wise to take these precautions if only to minimise the detuning effect of the enclosure. The review kit was constructed by an experienced kit builder in about one hour.

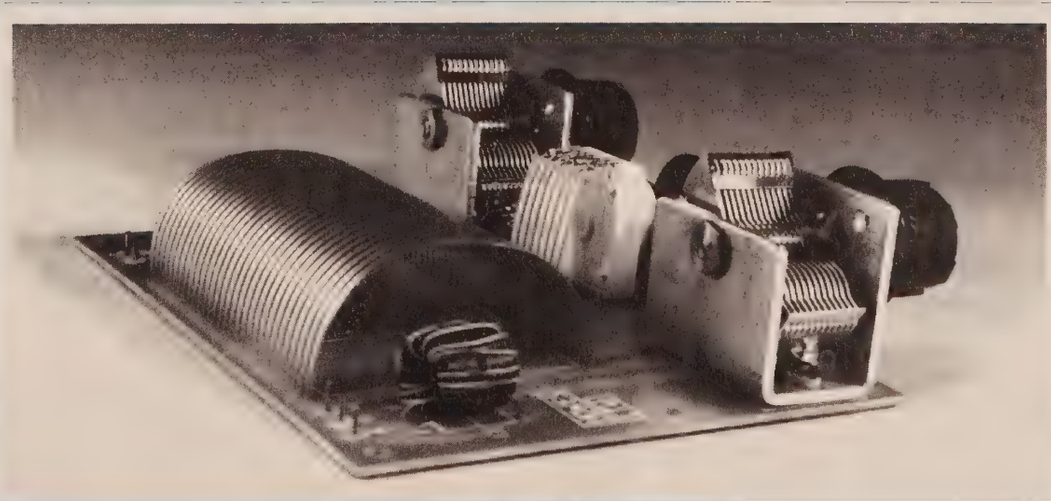
In Use

The a.t.u. was initially tested with a low power transmitter on the amateur bands, with great success. The antenna used for this test was an array of parallel dipoles for 3.5, 7, 14, 21 & 28MHz all with rather narrow bandwidths. The a.t.u. was able to provide a good match with this antenna on all bands between 1.8 and 30MHz.

The next test was to attempt to match this antenna on all frequencies between 1.8 & 30MHz, with the short wave listener in mind. Again the a.t.u. achieved this quite easily. As expected though, some frequencies required careful adjustment for a perfect match. The twelve tapping points on the main inductor were very useful for coping with difficult antennas.

Summary

Overall this is a good first kit for the enthusiast. The small number of components, combined with the comprehensive instructions, ensure a good chance of success first time. Although ideal for the beginner the a.t.u. is a fully functioning unit which is also well suited for the QRP operator or short wave listener and represents good value for money. The kit costs £31.50 or £38.40 for a ready assembled model (P&P is £1.20 for kits and £3.00 for hardware) and is available from:
C.M. Howes Communications,
Eydon,
Daventry,
Northants NW11 6PT.
Tel: (0327) 60178, who kindly provided the review kit.



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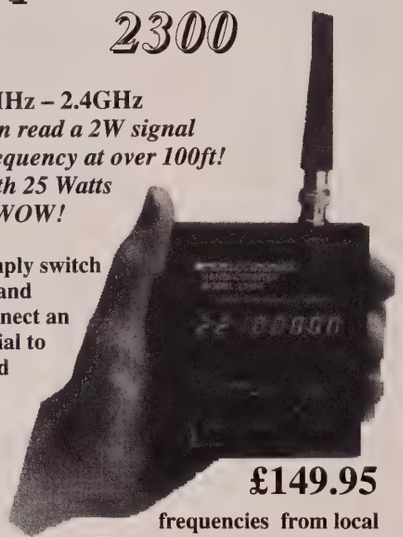

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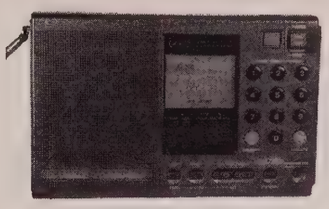

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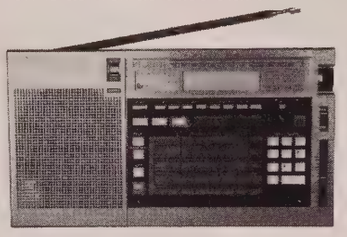

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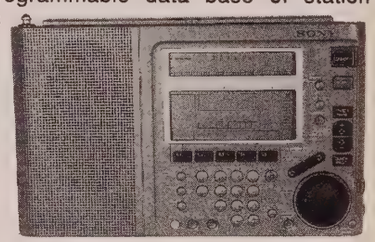

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Peter Waters G3OJV/G0PEP

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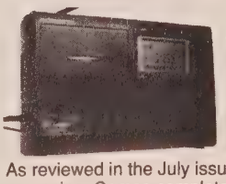

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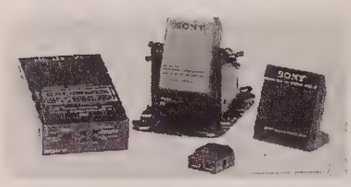

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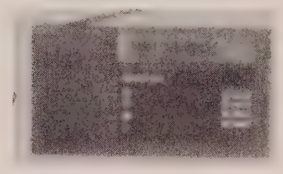

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The Travel Loop

ANTENNAS

Does your m.f./lf. loop antenna neatly fold up and allow you to transport it in your suitcase without damage? This simple design by Martin Doig certainly does and together with two small separate tuning units allows coverage from below 15kHz to above 1.6MHz.

Many designs have been published for loop antennas, I have built many different types. However, they all suffer a similar disadvantage, transportability! This simple design of m.f./l.f. loop antenna neatly folds up to allow you to transport it in your suitcase. Together with two small separate tuning units it gives coverage from below 15kHz to above 1.6MHz. The frame and loop windings both slide neatly into a cardboard tube measuring 787 x 50mm.

Loop Construction

The type of wire used is the important factor in this design. It needs to be fairly rigid to avoid tangling, yet flexible for neat storage. 20-way ribbon cable is used with an overall length of 2134mm. The framework consists of two pieces of planed wood 25 x 12.5mm, each 749mm long, forming a cross and held together by a halved joint. The joint is kept as tight as possible to avoid using additional securing materials such as nuts and bolts. Once the ribbon cable is formed into a permanent loop, it simply slides over the wooden frame. This needs to be as tight as possible to avoid slipping off. If necessary, small equal amounts can be sawn from each leg of the frame to ensure a good snug fit.

The frame is supported in an upright position by a 3.5mm diameter knitting needle. Saw the knitting needle in half, filing the ends to avoid scratching table tops, etc. Next, drill a suitable sized hole through two adjacent legs of the frame 6mm from the ends, aiming for a tight fit. A neater approach is to cover the needles with heatshrink sleeving. Additionally two cable 'P' clips could be screwed into each base leg allowing the needles to be pushed through them. At the same time one clip could be allowed to swivel through 90° allowing the needle stand to be held parallel to the framework using a third clip, making easier storage and the stands less likely to be lost.

Loop Connections

Start with a total length of 20-way ribbon of 2134mm. Strip a small amount of insulation (3-5mm) from every wire at each end of the cable. Solder the opposite ends of the cable together off-setting connections by one position, eg. Black to brown, brown to red, etc. (**Fig. 1**). Symel sleeving or similar is required to insulate adjacent connections. Some coil taps are required as indicated in **Fig. 1**. You should end up with the main loop starting at a single black connection and ending at a single grey connection. Leave one turn of the coil (the outer white) unconnected from the main loop. This will act as the coupling loop to give a low impedance feed to the receiver antenna input.

A short length (say 500mm)

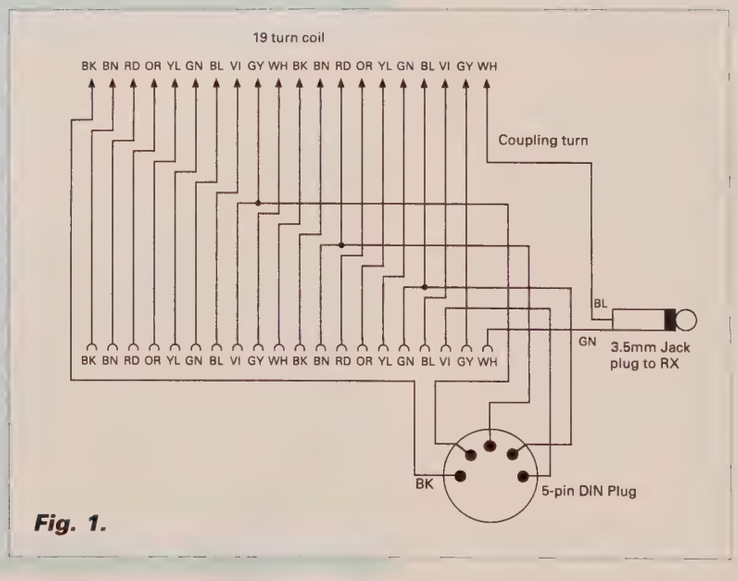

19 turn coil
BK BN RD OR YL GN BL VI GY WH BK BN RD OR YL GN BL VI GY WH
Coupling turn
BL
GN
3.5mm Jack plug to RX
BK BN RD OR YL GN BL VI GY WH BK BN RD OR YL GN BL VI GY WH
BK
5-pin DIN Plug

Fig. 1.

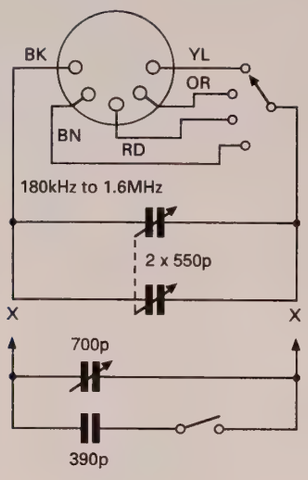


Fig. 2.

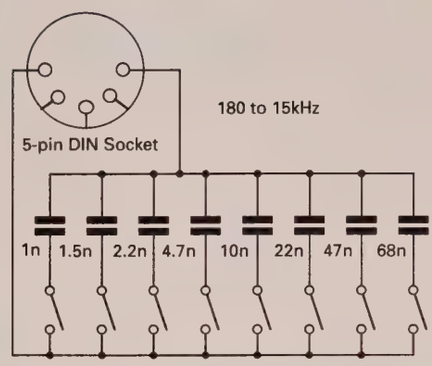


Fig. 3.

of 7-way ribbon cable can be used to make the connection to the main loop tags and coupling coil. This length is then terminated in connectors to suit the user. I chose a 5-pin DIN plug for the main coil connection and a 3.5mm jack plug for the coupling coil to feed my Sony ICF-7600DS antenna input. All the joints on the loop can now be neatly taped up.

180kHz - 1.6MHz Tuning Unit

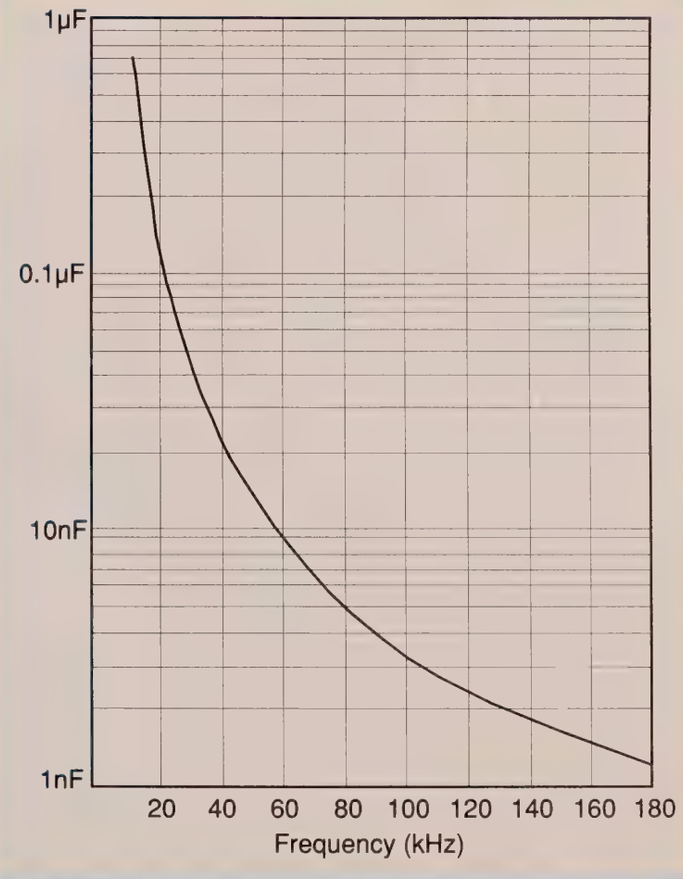
The m.f./l.f. tuning unit 1.6MHz-180kHz simply consists of a dual-gang capacitor to resonate the loop and a rotary switch to short turns, so varying the tuning range. The dual-gang capacitor was 2 x 550pF found in a junk box. Its combined value of 1100pF is essential to make the loop tune down to 180kHz. A 700pF capacitor could be used but an additional fixed capacitor of 390pF would need to be switched in when required. The size of the box depends on the capacitor and switch, if fitted. A 5-pin DIN socket can be mounted on the rear of the box. The tuning capacitor was not calibrated accurately, but approximate tuning ranges for the coil taps shown are: 180-700kHz, 500-1100kHz, 1000-1600kHz (**Fig. 2**).

One limitation of using ribbon cable for this type of loop seems to be the increased self-capacitance due to the close spacing of the turns. The effect is a lowering of the *Q* at the h.f. end of the tuning range - a small trade-off for making the loop very transportable.

15-180kHz Tuning Unit

The coil described above has an inductance of approximately 0.6mH and 1100pf resonates this at 180kHz. I posses a v.l.f. converter which operates down to 10kHz and the loop can be made to successfully tune down to these frequencies. An additional tuning unit connects directly in place of the unit above. No variable capacitor is used here due to the enormous range of capacitance needed. For example to tune 60kHz, 10nF is needed; whereas for 15kHz, 160nF is required. Eight fixed values of polystyrene capacitor were chosen, and any combination of the eight can be selected, giving a range from 1 to 160nF (**Fig. 3**).

The size of the box needed will depend on the number of switched ranges required and the availability of the larger capacitors; i.e. a 68nF capacitor may have to be made from 7 x 10nF in parallel. A 5-pin DIN socket is again used to connect the loop. The graph below shows the capacitance required to resonate the loop between 180kHz and 15kHz.



Abbreviations

DIN	German Standards Institute
h.f.	high frequency
kHz	kilohertz
l.f.	low frequency
m.f.	medium frequency
mH	millihenries
MHz	megahertz
mm	millimetres
nF	nanofarads
pF	picofarads
Q	the 'goodness' of a circuit
v.l.f.	very low frequency
°	degrees

The Jack Scanner Antenna

ANTENNAS

Listening on a v.h.f./u.h.f. scanner brings a lot of enjoyment to an ever-increasing number of readers. Gareth Jones GW4JKW built his own antenna to improve his scanner's reception.

The performance of some scanners is quite remarkable, even when only used with the little telescopic whip antenna or rubber-helical that's supplied with them. When they are connected to an efficient wide-band antenna the set's true capabilities start to show themselves and signals can be received from quite astounding ranges.

You can buy a number of dedicated commercial antennas which do the business, but most of these are a little on the pricey side. It's not too difficult, with a little bit of effort, to build a suitable antenna for a fraction of the price of the commercial alternatives.

The antenna in this article, provides quite good reception performance, can be built in a few hours and depending on how good a shack 'junk box' you have, shouldn't cost you more than a few pounds. It is intended primarily for indoor use - mounted in the loft is ideal - but you can use it on a temporary mount outdoors and even attach it to a mag-mount for use under 'static' mobile conditions when parked at some radio-advantageous high spot.

The antenna consists of four 'whip' elements of different lengths connected in parallel to the centre core of a PL259 plug. Three of these whip elements are, for convenience and ease of adjustment, standard telescopic antennas of the type you can pick up for 50p a piece or less at radio rallies.

Don't get the type with hinged or swivel bases, these are usually more expensive and more trouble to use. The ideal sort are those tapped to take a M2.5 or M4 screw in the base and with a fully extended length of around 1m and a collapsed length of 13 - 15mm. Don't worry too much about getting these exact sizes, just get what's going! **Fig. 1** shows how these antennas are attatched to a small mounting plate and then to the back of a PL259.

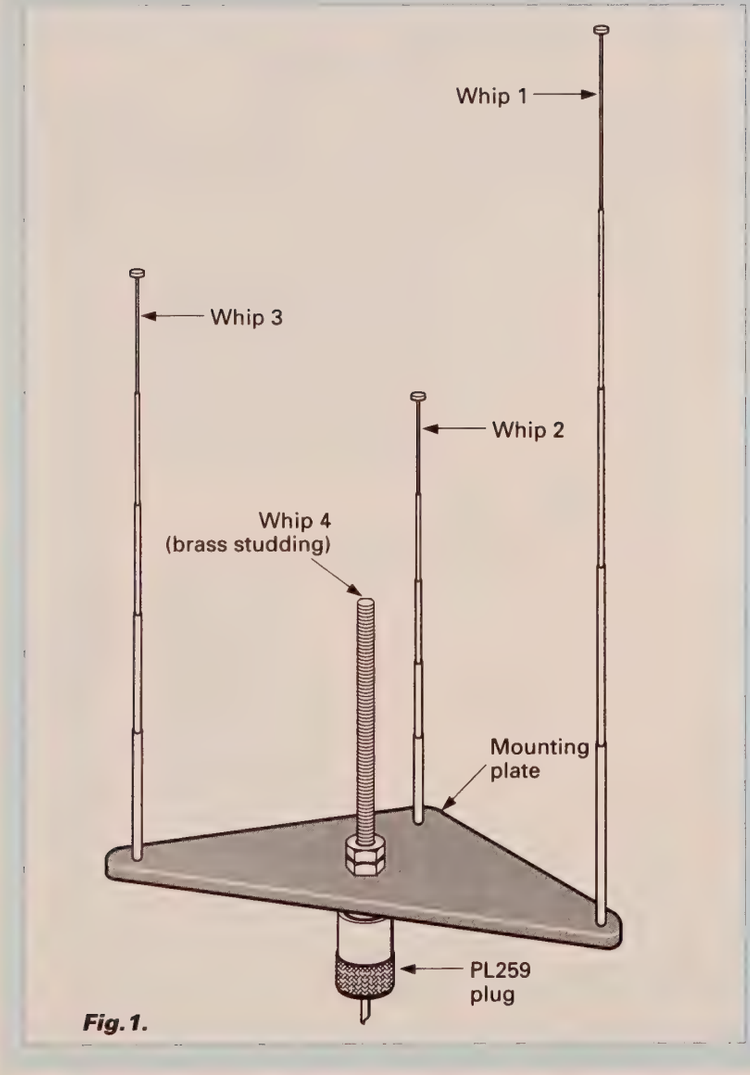


Fig. 1.

Construction

Cut a piece of aluminium plate for the base as shown in **Fig. 2** and drill four holes as indicated. The hole in the centre should be of a size to take a length of 6BA brass studding, while the other three should suit the screw threads in the whips (M2.5 or M4). Now take the length of brass studding and insert it into the PL259 plug so that it fills the central connector. Solder in place. Wrap a length of adhesive tape around the 'waist' of the plug body to stop any Araldite from running out of the holes as you complete the next stage.

With the brass studding soldered into the plug and the tape in place, put some Araldite (epoxy resin) into the open back of the plug where the studding protrudes. Try to keep the studding as near central as possible and avoid any movement whilst the Araldite is setting. Fill the plug until the Araldite is level with the rim and put to one side to thoroughly set overnight.

Now mount the triangular

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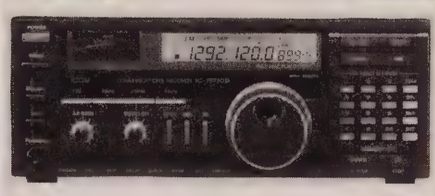

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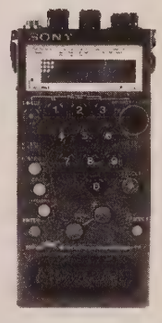

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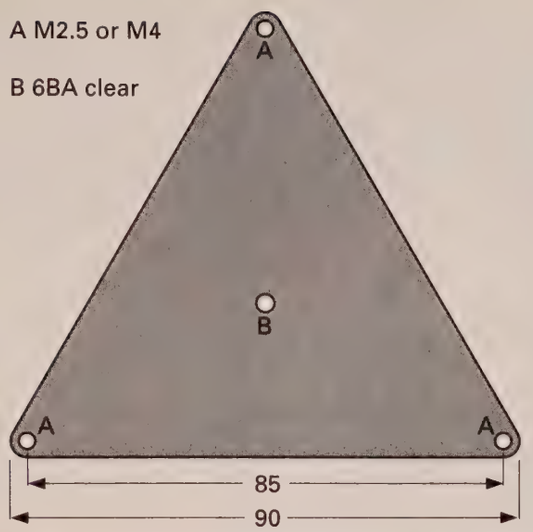

Fig. 2.

Table 1.

List of suggested frequency bands and whip lengths.

65 - 87MHz	1m *
108 - 136MHz	750mm
144 - 148MHz	500mm
400 - 450MHz	170mm
900 - 940MHz	100mm **

* full length
** brass studding

NB. This is not intended to indicate calculated resonant lengths for the relevant frequencies, merely the lengths I used for these bands.

plate onto the brass studding, ensuring that you place the two nylon washers on the studding first so that these act as insulation between the plate and the metal plug body. Put two 6BA nuts on the studding above the plate - **Fig. 3**. and tighten to hold the plate securely in place. Don't overtighten as you can easily strip the threads.

Of the original 150mm length of brass studding you should have 100mm or so standing proud of the centre of the mounting plate. Leave this in place as it forms the fourth 'whip' element. Now attach the other three telescopic whips. The table shows some suggested lengths and each whip should be extended to match one of the lengths. You could choose your three favourite bands or just space them throughout the operating frequency range of your receiver.

If you wish you can now cover all the nuts above and beneath the plate, together with the Nylon washers, with Araldite and allow it to set. This is particularly useful if you intend to use the antenna much outdoors.

That's the main part of the antenna completed. Obviously the PL259 just plugs straight into the socket on the top of the mag-mount.

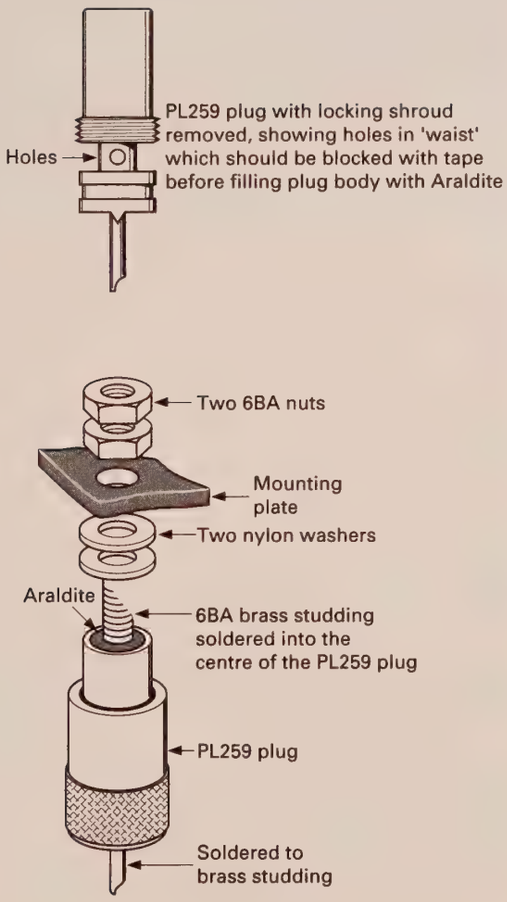
PL259 plug with locking shroud removed, showing holes in 'waist' which should be blocked with tape before filling plug body with Araldite
Holes
Two 6BA nuts
Mounting plate
Two nylon washers
Araldite
6BA brass studding soldered into the centre of the PL259 plug
PL259 plug
Soldered to brass studding

Fig. 3.

Ground Plane

For fixed use, either at home in the loft or for occasional use mounted outside, you need some sort of ground plane. There are several different ways of making one of these. Perhaps the simplest is the one I used with a loft-mounted version of the Jack antenna and shown in **Fig. 4**.

This consisted of a small diecast box with an SO239 UHF socket mounted in the middle of the base. The coaxial cable connecting the socket to the receiver exits at the side of this box.

Four thin strips of aluminium, each 800mm long x 100mm wide, are screwed to the lid of the box. I used the existing lid fixing screws to fix these strips, which had holes drilled to line up with those in the box lid. That's all there is to it.

Performance

So, what are the received signals like compared with the small whip that came with the scanner? Well, first you have to take into consideration the actual location of my QTH,

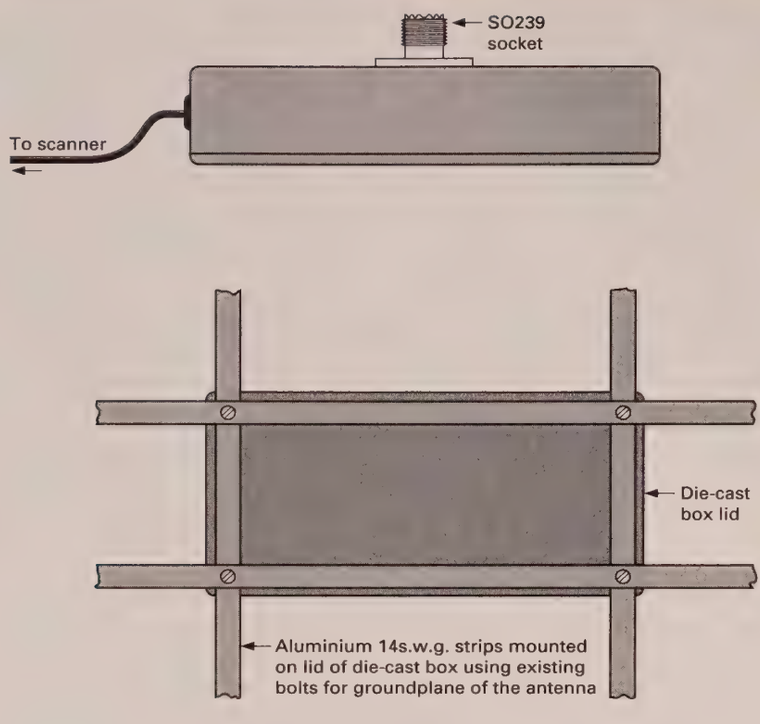

Fig. 4.

which is on the south facing slopes of a small hill, in a valley surrounded on three sides by mountains up to 600m high. My best take-off for v.h.f./u.h.f. operating is to the south. About 10km in this direction is a large town and using the set's whip antenna, only one or two of the better-sited p.m.r. base stations located there can be heard. With this antenna mounted in the loft connected, quite a few more can be heard, as can a few odd mobiles working to them. Additionally, the control tower at Bristol airport can also be heard, about 22km away - not possible on the set's own whip as this airport is more 'around the corner' from my clear signal take-off direction.

Lastly, as there is bound to be some licensed amateur who feeds r.f. up it, just to see if it will work. The answer is, yes it does, on 144 and 430MHz, but that's not what it's intended for. It's intended to be a wide-band receive antenna. If you want to transmit on those two 'narrow' segments, there are much more suitable antennas about.

Why did I call it the Jack? Simply because I use it plugged into a JIL!

YOU WILL NEED

1	PL259 UHF plug (suitable for UR67 coaxial cable)
3	Telescopic whip antennas (see text)
3	M2.5 or M4 screws to fit whips (see text)
2	Nylon washers 6BA
2	6BA nuts
	6BA brass studding, 150mm long
	Epoxy resin (Araldite or similar)
	Aluminium for mounting plate 12-14s.w.g. (see text)

If you are going to make up the diecast box/ground-plane assembly you will also require:

1	Diecast aluminium box (see text)
4	Strips of 14s.w.g. aluminium (see text)
1	SO239 UHF socket and mounting bolts
1	Rubber or Nylon grommet for the cable exit point from the box

Espionage Antennas

During World War II agents needed to be able to set up their radios without being detected. June Stirrat looks at some of the ways in which they arranged their antennas to get the best performance without attracting unwanted attention from the enemy.

The circumstances surrounding World War II espionage often prevented an operator from setting up an outside antenna. Anyone could have been a Gestapo agent or informant and a single stray wire could have looked out of place and led them straight to the room where a clandestine transmitter was being used. The only safe option was to keep all of the wiring on the inside of the buildlng and possibly on the inside of one room within it.

Rule of Thumb

The efficiency and operation of h.f. antennas rigged up within buildings depends on many factors which are difficult to describe and hard to measure. As well as this, stations would only be used once or twice at the same location and on the air time would be kept to a minimum. This meant that there was little chance for practical experiment, so rules of thumb gained out of experience had to be relied on.

An amateur is often happy to take pot luck on who they can get through to. The spy needed to contact a particular station, a known distance and compass bearing away. If the control station was less than 500km away, some element of high angle radiation would be needed to secure contact on h.f. However, if the control station was at a much greater distance, some low angle radiation was essential. In any event, the largest room on the highest floor of a building would be chosen whenever possible.

Precious

Out of doors, an antenna wire would be cut to a quarter wave for the lowest frequency in use. Indoors, about 2 metres of wire would be added to this length, using and nothing else but rule of thumb, to compensate for the building.

The arrangement shown in **Fig. 1** gives low angle radiation from the vertical wire near to the set and some high angle radiation from the horizontal length along the ceiling.

This arrangement may suffice above l0MHz. However, the longer wires required for low frequencies, such as 3.5MHz and 7.0MHz, have to be folded in a suitable way. The way in which the wire is folded will effect the angle at which small, but precious, amounts of r.f. are radiated.

For high angle radiation, try the arrangement shown in **Fig. 2**. The wire is run up the wall and across the ceiling as before, but this time the surplus wire is folded backwards and forwards along the end wall.

For low angle radiation, run the wire up the wall and fold the surplus backwards and forwards across the ceiling as shown in **Fig. 3**.

Earthing at r.f. is always a problem and can be difficult to arrange on the upper floor of a building. Sometimes connection to the mains wiring is adaquate to secure h.f. contacts. Central heating pipes often offer a useful earthing point. The counterpoise wire remains an essential standby. Lay it out on the floor, as in **Fig. 2**.

Challenge

Equipment has changed over the years and modern receivers work very well with short antennas. However, h.f. transmission from an antenna inside a room will always remain a challenge. Wire antennas are simple and inexpensive, but be warned, drawing pins can be hard to get out of the ceiling!

Abbreviations

h.f.	high frequency
kHz	kilohertz
l.f.	low frequency
MHz	megahertz
r.f.	radio frequency

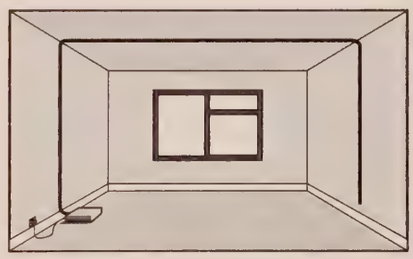

Fig. 1.

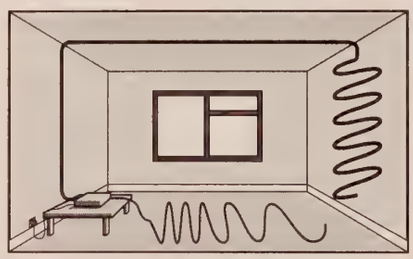

Fig. 2.

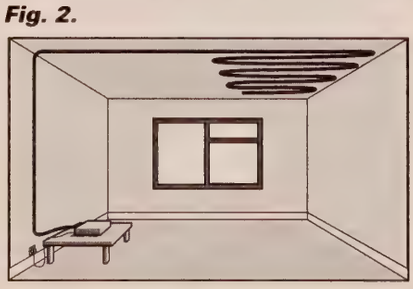

Fig. 3.

ANTENNAS

Antennas for Scanners

Desk top scanners are generally supplied with a short telescopic whip antenna and a socket to enable an alternative antenna to be connected. In this article Mathew Probert looks at choosing antennas for use with desk top scanners.

The most striking feature of any scanner is the wide range of frequencies that it is designed to receive. It seems logical, therefore, to first consider 'bandwidth'. The term 'bandwidth', refers to the range of frequencies to which an antenna is responsive. Portable television antennas are often refered to in advertising literature as 'wide band', indicating that they are responsive to all the television channels in use in the UK. Although the manufacturers of a television antenna may describe it as wide band, it is only designed to receive signals within a very narrow range compared to a scanner. Indeed, a wide band television antenna only needs to receive signals between 470 and 582MHz, whereas a scanner is designed to receive signals between 25MHz and 1.3GHz, more in some cases!

Polarisation

The next consideration, that of 'polarisation', is not quite so obvious. Radio waves may be transmitted using one of three 'polarisations'; Horizontal, Vertical or Circular

An antenna responsive to horizontally polarised radio waves only, will not receive signals from vertically polarised sources, and similarly, an antenna which is responsive to vertically polarised waves only will not receive horizontally polarised radio signals. An antenna that is responsive to both horizontally and vertically polarised radio waves is described as being 'circularly polarised'. Most commercial and government radio signals in the v.h.f. and u.h.f. wave bands are transmitted with vertical polarisation. Some broadcast stations, and radio amateurs use horizontal polarisation.

Antenna Gain

The 'gain' of the antenna also needs to be considered. The term 'gain' is perhaps the most widely abused and least understood of all radio jargon. The 'gain' of an antenna, in simplified terms, is a comparative figure describing how much stronger a signal will be received by the described antenna compared to the same signal received when using a short, straight piece of wire. A television antenna provides a good example of both the benefits, and drawbacks, of 'gain'. A television antenna is often described as having 'gain' in terms of 10dB or more. The 10dB measurement is best viewed as a simple comparative figure, the higher the figure the stronger the received signal. The television antenna derives its gain from the fact that it only receives signals from one direction. To radio signals arriving at the antenna from directions other than the way the antenna is pointing it actually has a high loss in terms of received signal strength. **Fig. 1** illustrates a typical television antenna that will receive strong signals from a transmitting source B, but very weak signals from transmitting source A. This occurs because of the receiving antenna's directional char-acteristics, or 'gain'.

Practical Solutions

Having discussed some of the basic considerations of wideband scanner antennas, we may now look at some of the practical solutions which are available.

Perhaps the most widely known wideband scanner antenna is the 'discone'. Commercially available discone antennas often boast that they can receive frequencies between 25MHz and 1.3GHz, which, at first glance appears to be perfect for a scanner user's requirements. But what about polarisation and gain?

In order to better understand the discone antenna it is necessary to consider its design characteristics. The discone antenna is a variation on the simple wire antenna, where the simple wire has been replaced by a disc, or more commonly, a number of horizontal wires resembling the spokes of a wheel, and suspended a short distance above a cone. Hence the name 'disc cone', which contracts to 'Discone'. The diameter of the disc is one quarter of the length of the radio wave at the lowest frequency that the antenna is required to receive. Likewise, the length of the side of the cone is also one quarter

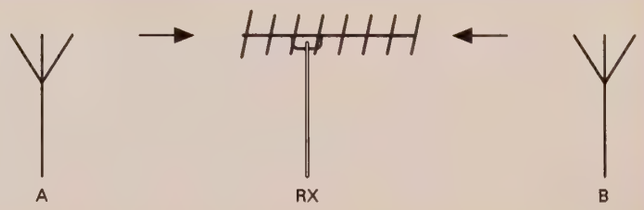

Fig. 1.

of the length of the radio wave at the lowest desired frequency, as is the diameter of the cone.

When constructed to these measurements, a discone antenna will receive vertically polarised radio waves from the lowest frequency upwards. It also provides gain over the simple wire antenna. This gain is achieved, not at the expense of horizontal directivity, but rather by restricting the vertical directivity to radio waves received from the horizon rather than the sky above. Since v.h.f. and u.h.f. radio waves only travel in straight lines, this directivity is not a drawback for a scanner antenna.

A properly constructed discone antenna does, then, appear to satisfy most of the requirements of a wideband scanner antenna, that is, it is wide band. But the polarisation is vertical, so horizontally polarised radio waves will not be received very well. In addition, a discone antenna that can receive radio signals from 25MHz upwards will be some 3m wide and nearly as tall!

Most commercial discone antennas sold for use with scanners are nowhere near as large as that. This leaves only one conclusion to be drawn - they do not cover the range of frequencies claimed. In fact, many commercial discone antennas are designed for use from 144MHz upwards.

Fig. 2 shows a typical commercial discone antenna. To summarise, the discone is a wideband, vertically polarised antenna that will receive signals from all around it at slightly higher strengths than a simple, single wire would. Its drawbacks are that it does not receive horizontally polarised radio waves, it is too large to be practical at the lower frequencies and it must be mounted on a non-metalic post otherwise its reception of signals from some directions will be reduced.

I previously described an antenna's gain as being the result of restricting the direction from which the antenna would receive radio waves. In many cases this is true. However, there are also other ways in which an antenna can be built so that it exhibits gain.

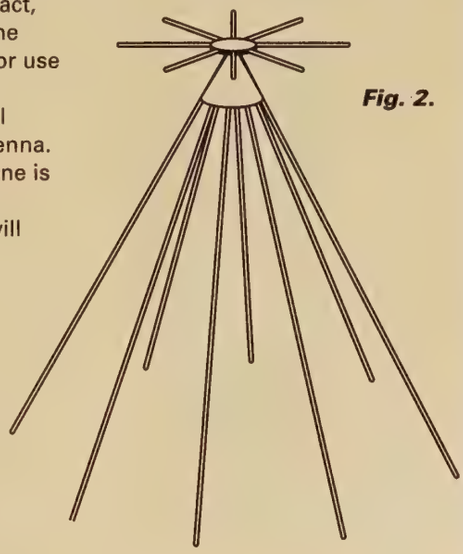

Fig. 2.

The Long Wire

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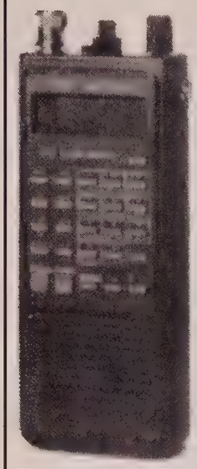

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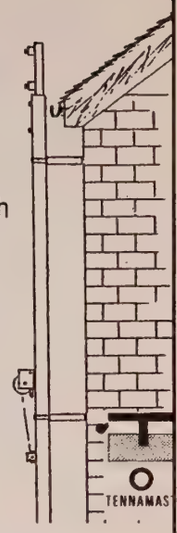

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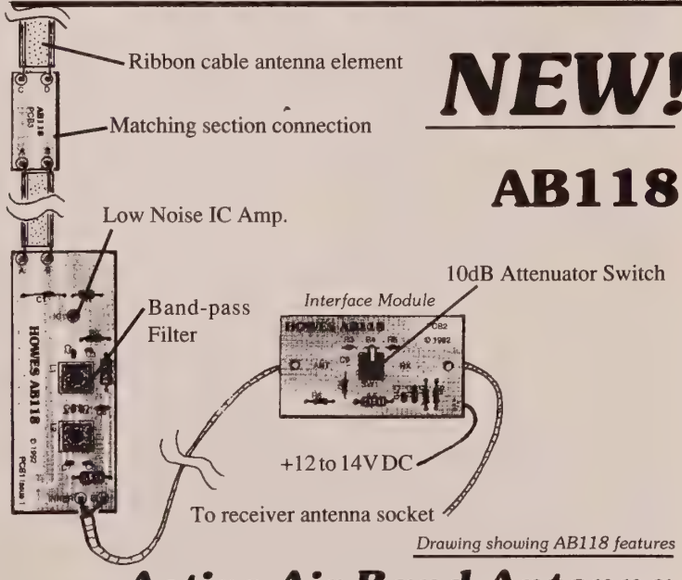

Drawing showing AB118 features

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which takes advantage of this is the long wire, which is simply a single length of wire supported horizontally between two supports, and fed directly to the receiver. This type of antenna receives horizontally polarised radio waves from all around it. Immediately it becomes apparent that this is not suitable for use with a scanner, since it does not receive vertically polarised radio waves - in fact most v.h.f. and u.h.f. transmissions. If, however, the long wire is bent through a right angle to form an L shape, with a vertical and horizontal element, then both horizontally and vertically polarised radio waves will be received. We now have a circularly polarised antenna receiving signals from all directions at high strength.

So what's the catch? The catch, or drawback, of the 'inverted L' antenna, as this type of wire arrangement is called, is that, although it is a finite length of wire, to radio waves of different frequencies it appears as different wave lengths. This characteristic is called 'resonance'. To understand why this condition is a drawback, we need to consider a matter called 'impedance'.

For the sake of simplicity we will accept that most scanners require to be connected to an antenna with an impedance of 50Ω. A resonant piece of wire, which is an odd number of quarter wavelengths long, has an impedance at the end of 50Ω, when that same wire is an even number of quarter wavelengths long it has an impedance at the end of several thousand ohms.

If the impedance of an antenna where it connects to a radio receiver is significantly different, then radio signals in the antenna travelling towards the receiver will, upon meeting the different impedance, be reflected back along the antenna rather than passing into the receiver as desired.

It is obvious, then, that a similar impedance is required at the point of the antenna where it connects to the scanner, and at the scanner's antenna socket. It should also be apparent that, since scanners are used to listen to a wide range of frequencies, a finite length of wire will present varying impedances at the point where it connects to the scanner, and at frequencies where the antennas' impedance is very different to the scanners' very little signal will be fed into the scanner.

Significant Problem

This matter of different antenna impedances was not a problem with the discone antenna discussed earlier, but is a significant problem with the inverted L. So how do we resolve this problem? A length of wire may be made non-resonant simply by connecting a 470Ω resistor at the far end of the wire and connecting the other end of the resistor to an earth connection, or short length of wire. If this is done, the impedance at the other end of the wire will remain a constant 470Ω. This difference in impedances is still significant and it may be found that insufficient signal is being transfered from the antenna to the scanner, in which case a transformer can be connected between the scanner's antenna socket and the antenna.

A typical inverted L antenna arrangement is illustrated in **Fig. 3**. This is a good all rounder if you have the space to erect it and if you can live with the compromise between high signal levels received by the antenna and the loss of signal strength delivered to the scanner as a result of the difference in impedances.

Umbrella Antenna

If you do not have the room to erect an inverted L, or, if your spouse, neighbours or local authority object to its appearance, you may wish to consider an umbrella antenna in the loft space. The umbrella antenna is a number of different lengths of wire supported around a vertically orientated plastics pole, such as a length of 1.5in plastics waste pipe. This type of antenna gets its name from its appearance, since any wires which are so long that they overlap the end of the pole, are taken away horizontally. Each wire is cut so that it is a quarter wavelength long at a different frequency. All the wires are joined together at the low end and soldered to the inner conductor of a length of coaxial cable, which in turn is fed to the scanner's antenna socket.

At different frequencies, the different lengths of wire each have a different impedance at the end where thay connect to the coaxial cable, with at least one wire having a sufficiently similar impedance to transfer its received signals on to the scanner. This antenna is primarily vertically polarised, except for frequencies where the wire offering the correct impedance to the scanner is bent, in which case both vertically and horizontally polarised waves are received.

Radio signals from all around are received by the umbrella antenna, but at a lower strength to the inverted L. Finally, the umbrella antenna needs to be mounted above a metal surface, or series of wires all connected to the outer braiding of the coaxial cable.

In comparison tests with a commercial discone antenna, I have found that the umbrella antenna with six different wire lengths delivers higher signal levels to the scanner than the discone and is much cheaper to build than a discone is to buy!

I hope that this article has explained some of the problems connected with wide band antennas for scanner users and that you will experiment with antennas of your own.

Abbreviations

dB	decibels
GHz	gigahertz
in	inch
m	metres
MHz	megahertz
u.h.f.	ultra high frequency
v.h.f.	very high frequency
Ω	ohms

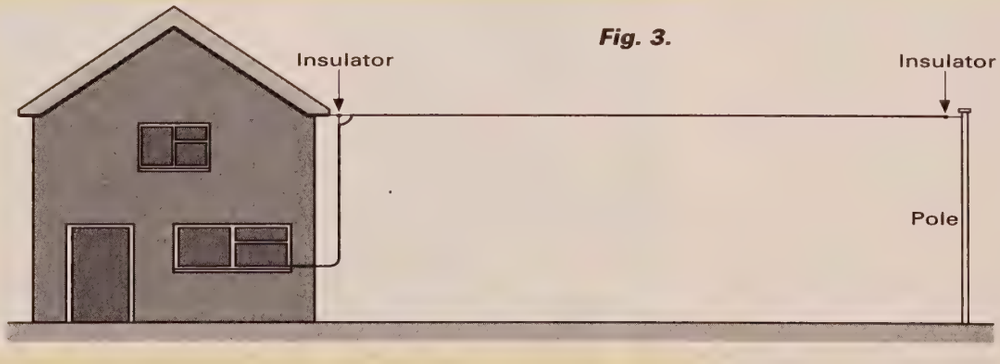


Fig. 3.

RF-Systems MLB Antenna Mk-1

Antennas are a popular subject. They can be made cheaply and lend themselves to experiment - after all you might manage to invent the ultimate antenna!

I first noticed the RF-Systems MLB Antenna Mk-1 at Friedrichshafen when Lowe Electronics had them on their stand opposite us. In fact, they strung one from their stand across to ours and back again to enable them to demonstrate their receivers.

The instruction sheet explains briefly how the antenna works and offers suggestions as to how it can be shortened if you cannot find room for its 13m length.

The antenna itself is interesting as it appears to be constructed from oxygen-free, copper speaker cable. At least it is easier to handle than the solid hard-drawn copper wire more commonly used for this type of antenna. I was reminded of the special 'aerial wire' sold in boxes when I was starting out - was it really better than ordinary flex? One end of the antenna has a metal loop fitted to connect to the magnetic balun. The opposite end is attached to an insulator (egg) to which is attached a length of Perlon cord for attachment to a suitable anchor point.

Another length of Perlon cord with a metal loop also fits the terminal of the balun and serves to anchor the balun at the shack end.

The balun is the component that makes the MLB Antenna Mk-1 different to your ordinary longwire. The 'patented impedance matching transformer' ensures that the varying impedance of the short 'longwire' is matched to the feeder . The balun is claimed to do away with the need for an a.t.u. and as it feeds into screened coaxial cable, there should be a noticeable drop in background noise.

The transfer of the signal from the antenna to the feeder is performed magnetically, so the feeder is electrically isolated from the antenna. This is claimed to offer improved noise performance. A galvanic connection to earth gives protection against static.

Installation

The instruction leaflet offers advice on how to put up the antenna. I decided to hang the balun from the top of my Tennamast and attach the other end to a suitable tree. Unfortunately I couldn't reach a high branch, so the wire sloped at 45°, west to east.

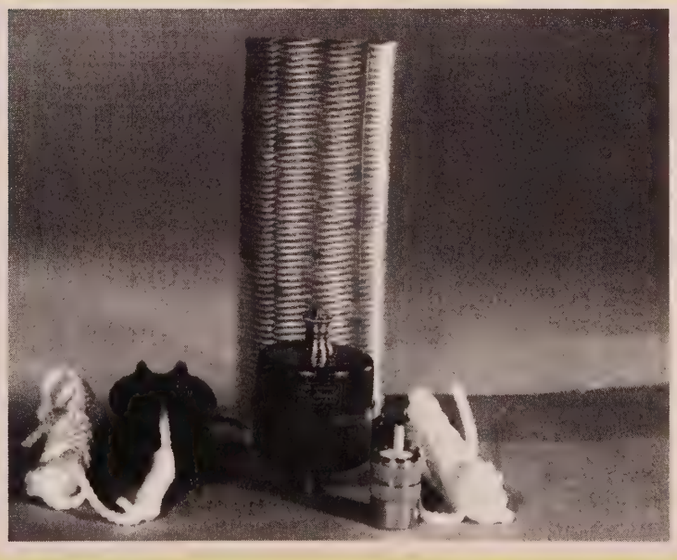
The feeder connects to the balun with a PL259 UHF plug, supplied with the antenna along with a rubber boot for weatherproofing. I used RG58 coaxial cable for the feeder.

My first problem came when I realised that my receiver has a 75Ω input. Not much good for testing a 50Ω antenna! A phone call to George G4HNM secured the loan of an FT-757GX. This was positioned alongside my two computers and connected to the feeder. I wanted to try using the receiver in close proximity to the computers to test the claim of reduced interference problems from such sources. The balun was hanging from its Perlon cord some 4m up. The leaflet suggest that it should be outside an 'envelope' extending 5m from the house and 1m above the roof. In my case this is not really practical - the height above the roof is easy, but I could only achieve about 3m from the house. However, any interference from either the Mac Plus or the PC 286 wasn't discernable.

Well Made

This short review was written while listening to the s.w. receiver during the afternoon. I have listened to a variety of stations mainly on 7MHz but also to HCJB's s.s.b. transmission on 21.455MHz. The antenna seems to be well made. Although it would need at least a year of weather to find out just how rugged and weather-proof it really is, I can see no real problems occuring. The magnetic balun certainly seems to overcome the problems of using a computer alongside the set.

The RF-Systems MLB Antenna Mk-1 was kindly loaned by **Lowe Electronics Ltd, Chesterfield Road, Matlock, Derbyshire. Tel: (0629) 580800.** The RF-Systems MLB Antenna Mk-1 costs £56.00 inc VAT.



The longwire antenna is one of the most popular types as it is simple and cheap to erect. Dick Ganderton has been trying out the MLB Antenna from RF-Systems.

The Living Room Loop

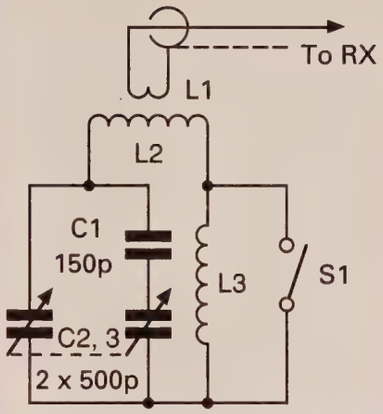


Fig. 1.

I have, in everyday use, a superb 9-waveband (l.w., m.w. and seven s.w. bands) classic receiver in polished wood cabinet. This RX has an unblemished, polished wood cabinet and is a piece of furniture in its own right! The large speaker is covered by an attractive two-tone speaker fabric, flecked with gold. Coverage is from 2000m (150kHz) to 13m (23MHz) and with a good antenna it will receive the world of DX, on all bands, with excellent audio reproduction. What an insult for it to be used with loops that, although efficient, look as though they originated on Heath Robinson's.drawing board. I also have efficient m.w./l.w. communications RXs and TX/RX equipment.

Ruthless

A careful, but ruthless, specification for The Livingroom Loop was drawn up under the two main design headings that I considered to be of importance. These were Decor and DX m.w. reception efficiency.

1. Decor. a. The loop must be decor compatable with the above All-Wave RX and its surrounds. It must be acceptable to other people.

b. It must fit into a pre-determined space - yet provide excellent performance.

c. All wooden parts should be wood dyed and wax polished to a suitable finish; and all visible screw heads should be round head chromium plated or bronze.

d. The loop wire should be colour compatable, and all extraneous wiring hidden. All moving parts should be hidden and protected in a box, which would also serve as the loop base.

2. Efficiency. a. The loop should be absolutely efficient, with m.w. and amateur Top Band (160m) DX performance. The option to add m.w. listening facilities if required should also be available.

b. The loop must be convenient to move to m.w. communications receivers for maximum DX results, and domestic convenience.

c. For maximum 'pick-up' the loop should be as nearly circular as possible.

d. The turns configuration should be spiral, as experiments have shown that this gives the best nulling (directional) and 'pick-up'.

e. For really serious m.w. DX listening the loop would be mounted on a turntable alongside a communications receiver and it was essential that the frequency resonating knob should be so positioned that both it and the loop could be rotated in one operation - at the drop of a hand and a twist of the wrist - without looking.

f. As l(c) previously.

Description

The colour schemes adopted in the design can obviously be modified to suit individual requirements without changing the design. It is up to the individual.

The circuit (**Fig. 1**) is relatively conventional. It does, however, consist of an unconventional spiral loop represented by L2, coupled to a coaxial feedline by LI. L2 is resonated by a two-gang, 500pF per section, variable capacitor with a 150pF ceramic capacitor in series with one section to cover the required frequency range without switching. It was found in practice that a slow-motion drive on C2/C3 was not necessary.

The loop covers from 2.2MHz to 545kHz (136 - 550m), i.e. the whole m.w. band plus the amateur Top Band and all frequencies between.

The circuit diagram shows the extra l.w. listening option circuit, which can be inserted at point 'X' using a switch. A convenient value for L3 could be a 2.5 - 3.5mH r.f. choke, possibly with a ceramic capacitor across it, to adjust to exact l.w. band coverage.

No pre-amplifier is fitted to the loop, although there is plenty of room, for a transistorised loop amplifier in the base. It has been found that with a good h.f. gain RX, a pre-amplifier is not necessary. On those occasions where an amplifier is needed, then an external 50Ω input/ 50Ω output external amplifier is used between loop and RX.

Construction

Fig. 2 shows the double twin cross boom arms, onto which is wound an octagonal spiral loop winding. This is supported by a vertical arm, which is bolted to the rear of the base. The tuning capacitor C2/C3 is mounted on the top and fitted with a 50mm diameter instrument knob with a 75mm diameter skirt. The abs plastics box is a mottled black, which is superior to the usual smooth-surface boxes, which show every finger mark. All visible screws should have round chromed heads.

The twin cross boom and vertical arm are made of Masons Timber Products Wood Mouldings. The

Can you think of one good reason why a Medium Wave DX Loop Antenna should not be attractive to look at? Richard Q Marris couldn't either, so he came up with this design.

advantage over ordinary timber being that the surface does not need rubbing down and is easily dyed and polished. Also it does not warp. Ruskins Red Mahogany WoodDye is used with two applications being made to each wooden part, using a piece of cloth. When dry, each limb is polished with domestic wax polish. The WoodDye comes in a variety of wood colours. It is also possible to do some interesting colour mixing to achieve a particular shade.

The wire chosen was single strand 1/0.6mm, orange pvc covered. However, it is available in 11 different colours. So wood and wire colour schemes can be in many alternative combinations to suit a particular situation. It is up to you!

Arms

The cross boom arms are shown in **Fig. 2**. Holes A & B are to accomodate the coupling loop, Ll.

Holes 1 - 16 are used for L2, at the bottom of the two vertical arms and holes 2 - 16 at the other six ends. The simplest way is to mark out and drill one end with holes 1 - 16, plus A & B, and then use this as a template, with a sharp point, to mark out the hole positions on the other seven ends. Then drill them. The twin cross booms should be securely screwed together, after polishing.

The L2 winding consists of 15 turns starting and finishing at the bottom of the two vertical limbs. Leaving a 380mm long tail, feed the end of the wire through hole 2 of the left hand bottom vertical and feed the tail back through hole 1. Anchor with a piece of cocktail stick as a wedge. The wire is then fed through hole 2 on all arms but into hole 1 on the bottom right hand vertical arm, and then for 15 turns, in a spiral terminating at the end of the bottom of the right hand vertical arm. This is a lengthy job; feeding - pulling - feeding - pulling the wire until the loop is complete.

Terminate with another 'tail' at hole 15. Then go back to the start and tighten each turn, up to the outer wire turn in hole 15. Fold back the 'tail' through hole 16 and wedge as before. The result is worth the time and effort.

At this stage the spiral loop and cross boom, should be screwed to the main vertical support arm, behind the top, of which, is fixed a small 2-way terminal block. Ll consists of one large turn, and one small turn, as shown in **Fig. 2**, the ends being terminated at the terminal block. The wire ends should be led along the rear of the top horizintal arms and stapled in position, using a Bambi stapler or similar.

The black abs box is used in an inverted position, with the lid at the bottom. The variable capacitor C2,C3 is mounted with the spindle hole 38mm from the front edge, on the longitudinal centre of the box. It is essential that the body length of the variable capacitor/should not exceed 56mm, excluding the spindle.

The spiral loop cross boom assembly is now bolted to the rear centre of the box, with the bottoms of the two vertical cross boom arms hard against the box top . Two small holes are drilled through the rear of the box, and the two L2 'tail' ends fed through, cut back and soldered to the C2 - C3/Cl configuration as in the circuit diagram, **Fig. 1**.

A 1.5m length of RG58 coaxial feeder is connected to the Ll ends at the terminal block . It should be cleated and hidden down the back of the vertical support arm.

The 'lid' of the plastics box is at the loop assembly bottom and it is suggested that some non-scratch material be stuck onto this to avoid scratching furniture. Cut-up beer mats were used on the prototype.

Efficient Nulling

On attaching the spiral loop to a good RX it will be found that the signal pick-up is excellent, with efficient nulling.

Between 2.2MHz and 545kHz the loop operates as an efficient directional RX loop. On the higher frequencies, up to 23MHz it has often proved to be quite effective as a non-tunable, non-directional, indoor s.w. RX antenna.

The Livingroom Loop offers a new look to m.w. loops. It is quite impressive to look at, domestically acceptable and very efficient as an antenna.

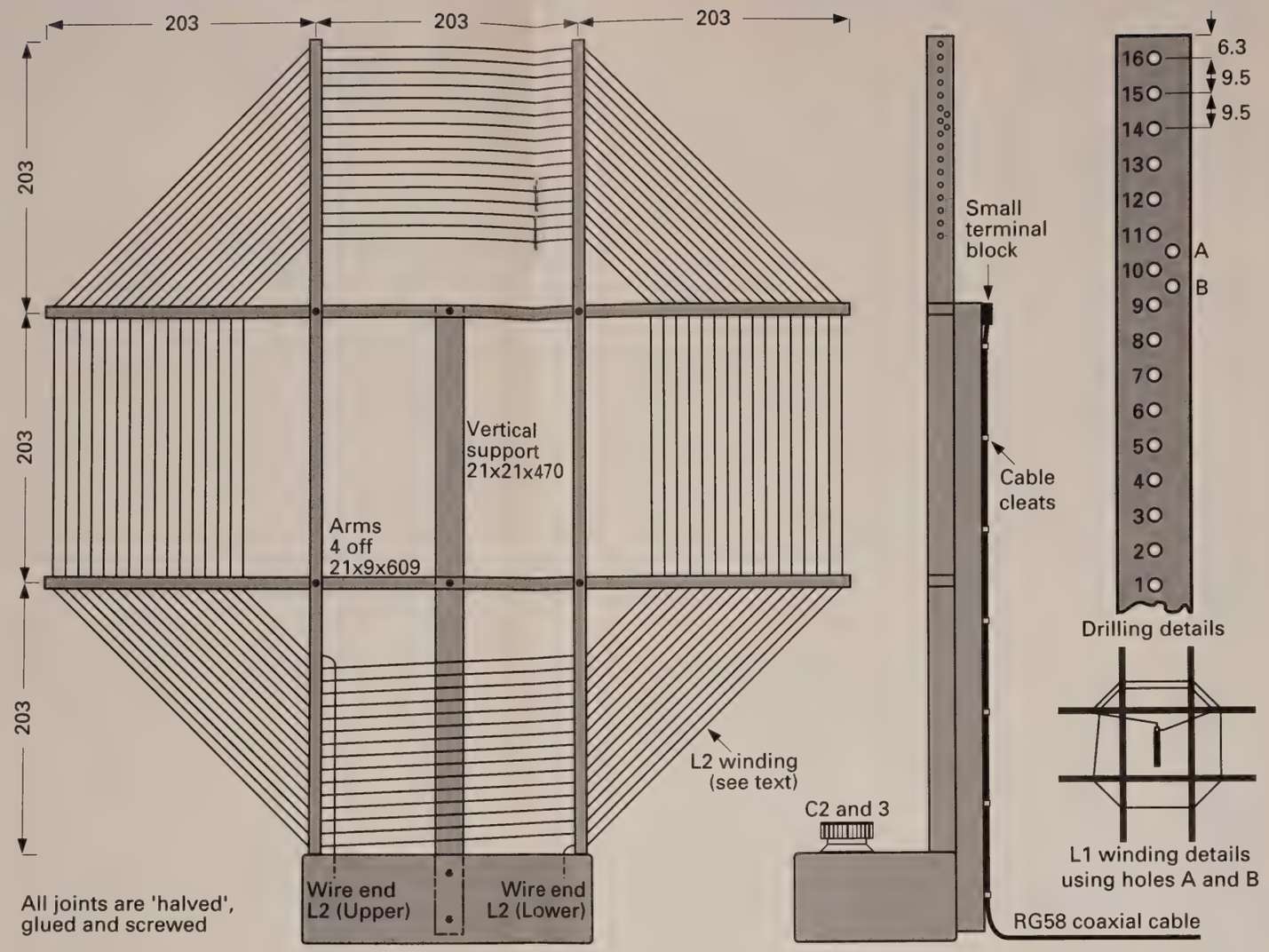


Fig. 2: Constructional details of the Living Room Loop. The wire (CBL/EW1/orange) and the abs box (MB6 213 x 142 x 57mm) can be obtained from Marco Trading, The Maltings, High Street, Wem, Shrewsbury SY4 5EM. Tel: (0939) 32763. The two-gang, 500 + 500pF airspaced, variable capacitor (small-size), is available from J. Birkett, 13 The Strait, Lincoln LN2 1JF. Tel: (0522) 20767.

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propagation

by Ron Ham
Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

Tony Hopwood from Upton-on-Severn wrote, "There was a steady drop throughout the month signalling the end of the solar cycle enhanced boost to h.f. signals which began in 1988". The 28MHz beacon chart, **Fig. 1**, this time certainly supports what Tony said, because, from the 48 beacons on the log sheet that I sent to contributors, only 20 were heard and that included one 'extra' LU1FHH (28.264MHz), two heard once only and most of the rest were copied due to seasonal outbreaks of Sporadic-E. However, the sun is never quiet and remember, it only takes an active spot to cause a really good disturbance.

	May						June																				
Beacon	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
The 28MHz Band																															
DF0AAB							X	X	X	X	X	X	X	X	X	X	X								X	X		X	X		X
DK0TEN				X	X		X	X	X	X	X	X	X	X	X	X		X	X				X		X	X		X	X		
DL0IGI				X	X		X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X		X	X		X
EA3JA				X	X	X		X	X	X	X				X							X					X			
EA6RCM									X		X																				
HG5GEW								X	X	X	X	X	X	X	X									X		X		X	X		
IY4M				X	X	X	X	X	X	X	X		X	X	X	X		X					X	X	X	X	X	X	X		X
LA5TEN	X				X		X	X	X	X		X	X		X	X	X					X			X	X	X	X	X		
LU1FHH																					X					X	X				
OK0EG	X			X		X	X	X	X		X	X	X	X	X	X	X			X			X			X		X	X	X	
OH2TEN			X		X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X
PT7BCN			X		X	X					X	X									X		X				X				
PY2AMI		X	X	X	X			X	X		X	X	X		X	X	X		X	X	X	X	X		X	X	X				
SK5TEN	X		X	X	X	X	X	X	X	X		X	X	X	X		X		X	X		X	X		X	X	X	X	X		X
VK2RSY	X																														
VK8VF										X			X																		
ZS6PW							X																								
Z21ANB																			X	X	X	X	X	X			X	X			
5B4CY	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X		X		X	X	X	X		X	X	X	X
5Z4ERR	X																														

	June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
The 50MHz Band																										
CT0WW (50.030MHz)							X														X	X				
EA3VHF (50.070MHz)																				X	X					
GB3SIX (50.020MHz)																				X		X				
OH1SIX (50.025MHz)								X		X	X															
SK6SIX (50.080MHz)								X															X			
ZB2VHF (50.035MHz)							X																			
4N3SIX (50.015MHz)																				X			X			

Fig. 1.

For your records, **Patrick Moore** (Selsey) kindly supplied me with a copy of the large sunspot group that he projected through his telescope at 1500 on May 21, **Fig. 2**. In June, **Ted Waring** (Bristol) counted 16 sunspots on the 3rd, 18 on the 8th and 11 on the 20th. **Ron Livesey** (Edinburgh), using a 2.5in refractor and 4.0in projection screen, located three active areas on the sun's disc on days 2, 13, 15, 17 & 24 and four, on days 11, 12, 14 and 21-23.

Earlier in the month, Patrick Moore was keeping watch on a 'string' of sunspots that crossed the disc between the 7th and 13th and as usual he sent me a drawing, **Fig. 3**, of how they appeared on his screen at 0640 on the 10th. Around this time in Sevenoaks, **Cmdr Henry Hatfield's** spectrohelioscope located 3 sunspot groups, 8 filaments and 7 quiescent prominences on the sun's disc on the 9th and 10th; 2grps, 10f and 5 small qps on the 12th and 13th; a few spots, 6f and 4 small qps on the 14th and 15th; 1grp slightly active, 12f and 6 qps on the 18th; a slightly active plage, 12f and 6 small qps on the 27th and 9f and 6 small qps on the 28th. Henry also recorded individual bursts of solar radio noise at 136MHz on the 27th and 30th.

While visiting the South Downs Astronomical Society's Trundle Observatory, near Chichester, on July 12, their Chairman, **Ian Wood**, showed Joan and I a long string of sunspots, around central meridian, being projected, through their refractor telescope. More details next time.

Auroral

Although mid-summer observation of aurora is hampered by the lighter skies, Ron Livesey, the auroral co-ordinator for the British Astronomical Association received reports of sightings for the overnight period on June 1, 7, 9-11, 14, 27, 28 & 29. Although **Dave Gavine** (Edinburgh) (latitude 59°) reported a 'faint glow' on the 11th, Ron points out that the other observations came mainly from astronomers where the sky is darker nearer to the magnetic pole in Canada. Once more this proves the value of the international co-operation of many observers.

Auroral reflected radio signals were noted by **Tony Hopwood** during the afternoons of the 8th, 10th & 23rd. **Fred Pallant** (Storrington) reported a 'very rough' tone on the signals from the Swedish beacon, SK5TEN, at 0822 on the 3rd and 1556 on the 9th.

Magnetic

The magnetometer used by Tony Hopwood detected 'disturbed' conditions on June 4, 14, 17, 23 & 25, 'very disturbed' on days 9-11 & 18 and 'storm' on the 8th & 28th. The various instruments operated by **Karl Lewis** (Saltash), Ron Livesey and **David Pettitt** (Carlisle), between them recorded storm conditions on days 8. 10, 11, 18, 24, 27, 29 & 30.

Sporadic-E

The influence of Sporadic-E, reaching to at least 100MHz, was proved by **Richard Gosnell** (Swindon) when he logged 7 East European broadcast stations in Band II on June 1 and around 8 and 20 at 1515 and 1930 respectively on the 6th. Furthermore, on the same band, **Simon Hamer** (New Radnor) heard programmes from Morocco, Portugal and Spain on the 6th and all Scandinavian countries on the 7th. Simon's report suggests an extensive and prolonged opening which ebbed and flowed for a couple of days.

Propagation Beacons

First, my thanks to **Gordon Foote** (Didcot), Richard Gosnell, Henry Hatfield, **Ted Owen** (Maldon), Fred Pallant, Ted Waring and **Ford White** (Portland) for their 28MHz beacon logs from which I produced the usual chart, **Fig. 1**. Fred Pallant checked the band many times on the 10th and did not hear a beacon. Although there are less 28MHz beacons in the chart this time, the extra space was soon occupied by a special report of the 50MHz beacons copied by Richard Gosnell, during Sporadic-E openings on the days indicated. The event at 1100 on the 23rd was so intense that Richard was able to copy GB3LER with only a whip antenna feeding his portable receiver

Tropospheric

During the tropospheric opening on June 12, Simon Hamer received Band II signals from stations in Denmark, Germany, Norway and Sweden and, while tuning around on the 30th, **Rhoderick Illman** (Oxted) logged Bedfordshire on 103.6MHz for the first time and was among those who heard the strong test-transmissions, between 99.9 and 101.9MHz, from the new Independent National Radio Service 'Classic FM'. This station was also heard by David Ashley, George Garden, Simon Hamer and myself. "It's just like opening my window", said Rhoderick, after hearing their outdoor sounds transmission which included various birds, dogs, sheep and overflying aircraft. I found several Dutch and German stations in Band II around 0730 on July 7.

Extra Info

Further reports about Ionospheric and tropospheric conditions, including the variations in atmospheric pressure can be seen in DXTV Round-up elsewhere in this issue.

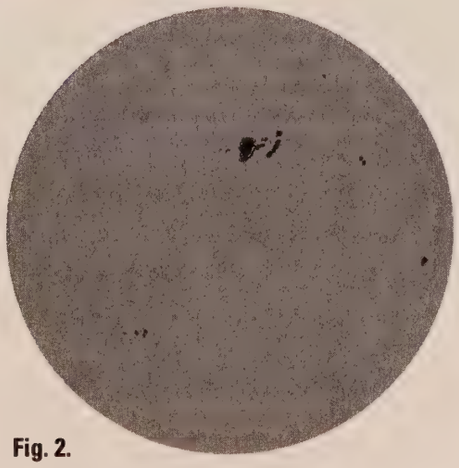

Fig. 2.

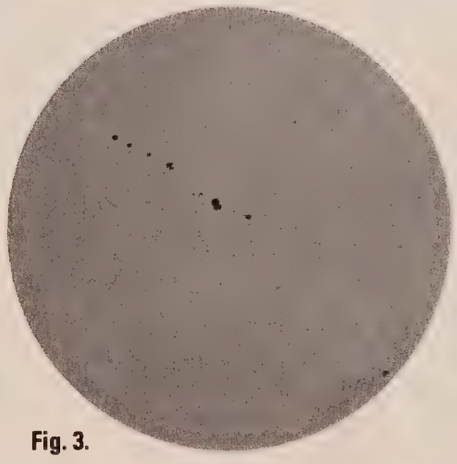

Fig. 3.

ssb utility listening

Peter Rouse GU1DKD, Barcroft, Rohais de Bas, St Andrews, Guernsey, C.I.

As promised last month a look at weathermen using the airwaves this month and in particular the NOAA hurricane hunters.

First, though, a look at what has been happening a little closer to home and the UK metmen have been zooming around the Azores in their C-130 Hercules, nicknamed '*Snoopy*'. Every spring and summer there is a near constant bank of 80% cloud cover that hangs over the Atlantic off the West African coastline. An international study took place in during June and the Meteorological offices research flight took part. Snoopy was dispatched with it's sophisticated sensors and equipment to scan an area from the Azores to Madeira. The Hercules is normally based at the Royal Aircraft Establishment base at Farnborough in Hampshire and they do use h.f. for communications. I have heard them on 6.755MHz using the callsign 'Metman' (listen-out for 'Snoopy' as well though) although I suspect they may well have other frequencies available as well. You will note of course that the 6.755MHz frequency is in the middle of a band normally used for military or government operations.

You Have to be Mad to Work Here

If you hold a Commercial Pilot's Licence and have a death wish then NOAA would like to hear from you. They use Lockheed P-3 Orions and send them right into the middle of thunderstorms to gather data. Indeed by the time you read this the hurricane season in the Caribbean will be fast approaching. The first sign of activity is usually a storm building up and you may get notice of this if you can hear the NOAA weather broadcasts on 7.880MHz (It is swamped by the constant carrier from Hamburg Meteo in most of Europe. They do not seem to use the frequency much but are obviously terrified that someone will steal it if they do not leave a carrier there). If you have a Meteosat weather satellite system then the pictures of the Caribbean on channel 2 can also give an early warning. The reason NOAA takes such interest is that these storms produce between three or four hurricanes a year and they often head north and cause considerable damage in states such as Florida, Georgia, Carolina and the states bordering the Gulf of Mexico.

Once the Orions are airborne listen-out on 3.407, 5.562, 6.673, 8.876, 9.020, 10.015, 11.898, 13.267, 13.354, 17.901 and 21.937MHz. The callsign KJY74 or 'Miami Monitor' is used on the ground and the Orions use callsigns NOAA-41 and 42.

NOAA are not the only ones monitoring the hurricanes. The USAF also operate modified Hercules using call-signs with the prefix 'Gull'. They regularly work McDill AFB in Florida 4.746, 6.750, 8.993, 12.246, 13.244 and 18.019MHz. You might also hear them on the regular USAF GCCS channels.

Magnetic Balancing Act

So you have all gone out and bought G5RV antennas (I am going to start demanding royalties from the people that make them) and now the enquiries are rolling in about the baluns that you need to make them really work well. The majority of G5RVs have their ribbon cable feeders terminated with a little plastics tube with an SO-239 socket on the end. Unfortunately, if you plug a standard 50Ω coaxial cable into this point you get a mismatch because you are connecting an unbalanced feed to a balanced feed. The balun that you need to get a proper match is a separate item and, unfortunately, will probably cost more than the antenna.

Commercially made baluns usually consist of a tube with SO-239 socket at one end and two screw terminals. They are available in 1:1 or 4:1 ratios and personally I find the 1:1 works best (in theory the other should be better). You will need to snip off the ribbon cable, bare the ends and connect them to the screw terminals. Some sort of protection should be applied to the terminals such as silicone grease or Waxoyl. You should also ensure that your connection to the socket which now provides an unbalanced feed is well taped-up to stop rainwater getting in.

The baluns mentioned should not be confused with the Magnetic Longwire Balun which I briefly mentioned last month. This device from Lowe Electronics is designed for operation solely with longwire or 'T' type antennas. There has always been a problem feeding longwire antennas because of the signal loss that can occur on the feeder because of mismatch. The alternative is to bring the longwire into the shack and feed it directly to the a.t.u. or receiver but of course that means picking up all sorts of mains born interference. I am always sceptical of claims made for some of these 'miracle devices', but I must say I am most impressed with this little gadget. It allows static build-up to leak away to earth and it really does seem to meet the claims made for it. In order to make it work hard I tried it connected to just 6m of wire. Above about 7MHz it performed just as well as my G5RV and in some cases better because there was a noticeable improvement in the signal to noise ratio. Below 7MHz the G5RV had the edge (according to the S-meter) although at times the lower noise levels on the longwire could make the signal easier to hear. Do not throw away your G5RV but if you can only string up a modest longwire then this balun should be seriously considered. Lowe can also supply full antenna kits (12.5 or 20m long) using a similar balun.

You write

Graham Tanner asked about the callsign 'Cosmos' on behalf of reader **Stephen Legg** of Gosport. I have never been able to get to the bottom of these callsigns which regularly appear with 'Watchdog' and 'Maffbase'. However, I will stab a guess and say I think they are fisheries protection vessels and they use the callsigns when working in conjunction with the Ministry of Agriculture, Fisheries and Food because that's who 'Maffbase' is and the 'Watchdogs' are their aircraft.

Charles Beanland wrote from Gibraltar where he used to be able to hear the NASA Shuttle rebroadcasts on 20.198MHz. He hears nothing now and, of course, that is due to the maximum usable frequency (m.u.f.) being much lower at the moment. By coincidence my latest press releases from NASA show the frequencies currently in use and they are: 3.860, 7.185, 14.295, 21.395 and 28.395MHz.

Catching Up

Graham has passed all your letters to me and I am slowly sifting through them. If your logs have not appeared yet do not panic, it's just me trying to catch up with everything.

Fair Play

Meanwhile another plea for fair play. Like myself, Graham also got a lot of letters requiring a personal reply. Chaps, this just is not on! We write a column and get a modest fee, but that does not cover us for spending hours and hours each week digging out information as part of a free consultancy service. This month's biscuit goes to **Mr X** of Cheshire who liked the companion book and asked if I could let him know what frequencies the USAF used. Arghhhh!

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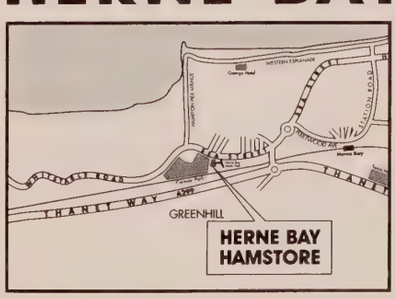

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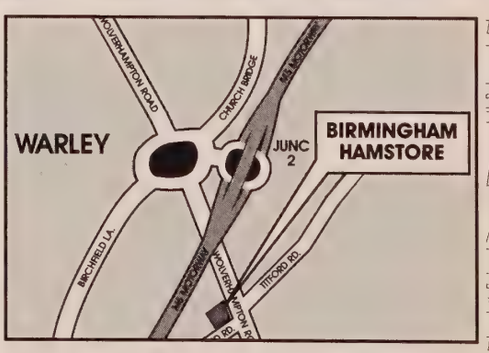

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bandscan

Australia
Greg Baker

With big political changes in Canberra and in Sydney over the past few months it has been hard for me to get away from the local a.m. and f.m. news broadcasts to do any other listening around. Still I suppose being a news freak does help when it comes to bringing you some of the happenings in this part of the world.

Political Upheavals

Labour Party power broker and Minister for Transport and Communications Senator Graham Richardson was forced to resign from the ministry when a concerted attack from the Liberal Opposition over what was known as the Marshall Islands Affair threatened to destabilise the government. In his wake Senator Bob Collins was appointed as the new minister. In an attempt to regain the political initiative the government issued a raft of policy changes.

Included was an announcement of changes to previous government policy on pay television. There will be six channels up for grabs on the new generation of Aussat satellites when the Chinese Long March rocket problems are solved and the satellites can be placed into orbit.

The first four channels will be sold on a competition price-basis later this year. These channels will not be available to existing electronic media owners. The remaining two transponders will be made available later for all comers including existing commercial networks, other media organisations and the Australian Broadcasting Corporation (ABC).

BBC in Sydney

During daylight hours here reception of the BBC World Service is difficult. To satisfy the demand for the World Service during our daylight hours the BBC has begun operating World Service Subscription Radio in Sydney.

The signal is picked up from satellite then rebroadcast in an encoded form by Sydney f.m. radio station 2SER-FM. To access the signal, subscribers pay a $A50 (about £20) deposit and $A150 (£60) annual fee for a specially constructed a.c.-d.c. portable f.m. radio receiver. The set can be tuned to any f.m. radio station but at the press of a button locks onto the encoded signal. The set comes equipped with a telescopic whip antenna, but has a socket for an external antenna. Reception range is more than the originally anticipated 60km.

At the moment, the service is only available in Sydney but the BBC is recording interest from people in other centres with a view to expanding the service in future. The next two cities in line are Melbourne and Canberra where it is planned to launch the service before the end of 1992.

As I reported in SWM September 1991 the BBC World Service is also broadcast on our local f.m. band from 2300 local until dawn through the Radio for the Print Handicapped stations in capital cities.

ABC SW Transmitters

Simon Hamer from New Radnor reports the reception of the ABC short wave domestic transmissions VL8A, VL8T, VL8K, VLQ, VLM and VLW. Back in 'Bandscan' Australia for March 1991, I listed the transmission frequencies for these stations but not the transmission time schedules.

Since then frequencies seem to have moved a little. The most recent schedule to hand has VLM and VLQ transmitting from Brisbane both operating at 10kW 24 hours a day. VLM is on 4.92MHz and VLQ is on 9.66MHz.

From Perth VLW9 puts out 10kW on 9.61MHz 24 hours a day, the daytime transmitter VLW15 puts out 50kW on 15.425MHz between 2245-0915UTC and the night transmitter VLW6 puts out 10kW on 6.14MHz between 0900-0100UTC.

There are three ABC s.w. transmission sites in the Northern Territory. Each puts out 50kW and operates from 2230-0730UTC during our day and from 0730-2230UTC during our night. VL8K from Katherine operates on 5.025MHz during the day, 2.485MHz at night; VL8T from Tennant Creek operates on 4.91MHz during the day, 2.325MHz at night; Alice Springs operates on 4.835MHz during the day and 2.31MHz at night.

Queensland Television

As Simon Hamer has reported before in *SWM*, he has received the Australian television stations ABC Channel 0 from Wagga Wagga in NSW and commercial station DDQ from Toowoomba in Queensland.

DDQ has a bit of a history. It started service in 1962 as the local Toowoomba station Channel 10 and continued on this channel until sold to the owner of TVQ Channel 0 in Brisbane. In 1988 a channel swap between Brisbane and Toowoomba resulted in TVQ going onto Channel 10 as part of the Australia Wide 10 Network and DDQ was left with Channel 0.

In 1991 WIN Television bought DDQ and joined it to their Rockhampton based Nine Network operation. It then became known as RTQ Channel 0 officially though WIN markets it on air as WIN Television.

RTQ Channel 0 operates from 1060m above sea level on Mount Mowbullan near Dalby and this is presumably the signal that Simon was able to see. Vision carrier is on 46.171875MHz, stereo audio carriers are on 51.671MHz and 51.913MHz and e.r.p. is 150kW + 3dB.

WIN Television currently has a network of twelve high power transmitters and 108 low power translators throughout Queensland and NSW.

100th Public Broadcasting Station

Australia's one hundredth public broadcasting station went to air for the first time in May. 2WAY- FM operates on 103.9MHz from 540m Mount Cairncross to serve the Hastings River area around Port Macquarie in northern NSW. The 30W transmitter puts out 120W e.r.p. according to Hastings Community FM Radio President Errol Callaghan. He says that there is no 240V power supply on Mount Cairncross so the transmitter operates from batteries charged by an array of solar cells.

Public broadcasting stations in Australia are non-profit, community based stations funded by sponsorship, community donations and some government grants. Australia's first public broadcaster was Adelaide station 5UV which began transmitting in 1972 with a restricted experimental licence.

Of the 100 stations now operating, 71 are community radio stations and 29 are special interest stations. There are many more community groups interested in providing services. Community radio stations are, as the name suggests, stations providing a service to a particular community. Special interest stations serve specific interests within a community including educational, religious and Aboriginal interests.

Reception from Australia

Colin Bartlett from Stantonbury, Milton Keynes reports reception of Radio Australia around 9.540MHz at 1740UTC on June 10. Colin Laycock from Kidlington can get Radio Australia "almost like a local station" on 21.720MHz for a few hours in the mornings.

Football

For followers of the Australian Football League and Australian rugby league, Radio Australia will broadcast the respective grand finals on September 26 and 27 between 0200-0730UTC on 11.720, 11.880, 15.240, 21.525, 21.740 and 21.775MHz. The best bet for the UK is probably 21.775MHz but interested readers may need to hunt around at the time.

Other News

Australia's 500th f.m. radio broadcast transmitter has been commissioned by 4KZ at Mission Beach in Queensland. The first full-time operating f.m. transmitters were commissioned for the ABC FM network in Sydney, Melbourne and Adelaide on 1 January 1976.

The number of operating a.m. broadcast transmitters lags at just 260. Last financial year around half these a.m. stations operated at a loss. Despite this slump in the fortunes of a.m. stations Melbourne's 3XY has just been relaunched as BREEZE 3EE on 693kHz. Using the latest technology the entire station will operate 24 hours a day with just nineteen staff.

Orders have been placed for two new 250kW transmitters for Radio Australia to install in Darwin and a contract has been let for a new curtain array for the Shepparton Victoria site. The new transmitters and aerial system will complete Radio Australia's upgrading programme and are scheduled to be operational during the second half of 1993.

As a result of WARC-92 Australia will consider introducing digital audio broadcasting on the 1452 - 1492MHz band as early as 1994-1995.

The Australian frequency band plan for the 900MHz band has been made to enable the introduction of commercial competition in public mobile telecommunications including cordless telephone services.

I welcome any news and comments. In particular I am interested in any s.w.l. information on Australian stations heard by SWM readers so I can chase up more details and interesting snippets from this end. My address is PO Box 208, Braidwood, N.S.W. 2622, Australia. For personal replies please could readers send 2 IRCs.

Roger Bunney, 33 Cherville Street, Romsey, Hants SO51 8FB

One of the current 'in vogue' buzz words about the satellite world is Digital Compression. Until recently it was fashionable to talk of DMAC, D2MAC and perhaps HDTV, but developments in the States are moving technology forward dramatically and the suggestion is that the various European MAC stables may be redundant before they've even been used! Already in the States, Scientific-Atlanta have sold their VQ digital compression system to Mediatech, a major media commercials producer, for satellite distribution of their TV video advertisements rather than use the traditional method of cassette duplication and road/air transportation. VQ (Vector Quantization) compresses the TV picture frame by frame offering an easier means of editing and adding video effects.

The digitally compressed information can also include timings, scheduling, invoicing and is supremely efficient for spectrum management, it being possible with today's technology to transmit four digitally compressed TV programmes in a bandwidth that formerly carried just one standard (analogue) TV programme. Additionally, that one compressed channel can also carry up to 20 CD quality audio sub-carriers. Scientific-Atlanta comment that as technology advances it is possible that up to 10 channels can be squashed into the same bandwidth as the four compressed channels now! Being all digital, the quality remains as the master tape throughout the programme and satellite chain. Cost is reduced since only a fraction of conventional transponder bandwidth is used (a satellite transponder hire charges increase with ever widening bandwidth).

With a dedicated satellite transponder (or part) leased for the Mediatech service it is simple for TV stations to receive that transponder and use decoding and digital expansion equipment to regain the high quality original commercials or programming. And it's quick.

The ITC in the UK have been experimenting with digital compression in their 'Spectre' research programme and towards the end of '92 will carry off-air tests via Stockland Hill and Beacon Hill transmitters. It is hoped to include HDTV tests in the same series of tests. It also means that if/when the UK goes HDTV that a transmitter can radiate standard PAL and 16:9 HDTV on the same transmitter and channel (subject to a home decoder).

HDTV (High Definition TV) has now been given a 5 year starter by the FCC in the USA early April at NAB. This will give established broadcasters a start time of 1998 with a 15 year timetable for all broadcast operations to convert totally to HDTV. Several HDTV systems are available and being tested - none MAC based and the tendency is to favour digital compression. It's interesting to report the comments of a reporter who saw 3 video monitors displaying virtually similar high quality pictures. The first was of an HDTV laser disc at 1125 lines/60 field, the 2nd and 3rd monitors showed down-converted pictures from the same source but on 625 lines/50 fields and 525 lines/60 fields. Despite the down-conversion to a lower standard the pictures retained a much higher perceived quality than if the programme material was originated in 625 or 525 lines.

Another buzz word is VSAT - Very Small Aperture Terminals - and relates to industrial or corporate satellite linkups. Basically its simply a small quality Ku band dish system ranging from 1 to 2m (fixed) with a high quality LNB, receiver and decoder, etc., providing reception from a given satellite that has a part-time take-up transponder lease from that specific company. In a VSAT system there will usually be a hub or central origination studio - often a company head office with a small TV studio facility - which uplinks to the satellite via their own equipment though more likely a drive-in satellite link truck (such as provided by SIS in the UK) that is leased by the day for the tele-conference.

All the remote VSAT terminals receive the programme and any reverse communication is usually achieved by telephone - it being much cheaper than a 2-way vision circuit which would then create a requirement at the remote site(s) for cameras, uplink trucks, etc. With the arrival of Intelsat K in orbit it is feasible for VSAT conferences to be conducted with a head office in the States and direct links via 'K' to regional offices throughout Europe and reaching into the CIS.

Though VSAT activity has been a routine industrial activity for some years in the States and Western Europe, Eastern Europe is only just becoming aware of the potential with this medium. Both Eutelsat and Intelsat are slotting satellites into strategic positions with modified beam coverage footprints to maximise coverage and taking advantage of the growth in industrial communications. VSAT is a term that will become increasingly commonplace in the commercial world during the 1990s.

Orbital Sightings

The depressing continuation of the Serbo-Croation war reaches our TV screens every news bulletin - and the arrival of SNG (Satellite News Gathering) similar to the Gulf War means that up to date and live pictures reach back into our living rooms from the war front. Early July saw the UN forces take over Sarajevo airport and since then SNG down-links with their live news reports are regularly monitored on many satellites either direct incoming or as a regenerated uplink from VisEurope. Equipment at the airfield will utilise uplink dishes probably no greater than 1.2m. With power supplies somewhat edgy (not forgetting local bombardment from mortars), many of the live signal feeds can be of poor signal strength. VisEurope's transponder over Eutelsat II F1 13°E 12.52GHz vertical has been carrying many compilations of Yugoslavian war footage, interesting to see VisEurope drop carrier on this transponder to allow a distant uplink from the war-front to send its news feed back to base.

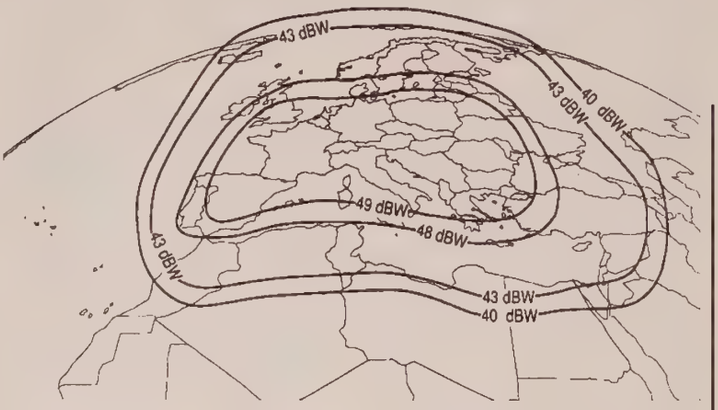

Fig. 1: Footprint of Eutelsat II F6 that will operate from 13° East 1994 alongside II F1 currently in operation.

The BBC have an active SNG at the airfield, often seen with colour bars and the identification 'UKI-17 BBC Sarajevo to ....', there being a broadcaster's destination abbreviation shown such as TF1, TVE, etc., though 'NBN' seen on July 3 is a new one on me! Both 625 line PAL/SECAM and 525 line NTSC will be seen during these feeds depending on destination. Apart from VisEuropes 13°E feed, Eutelsat II F3 16°E often carries Yugoslav output. June 29 produced 'CRO-ZAG-2 Earth Station' followed by the standard HTV3 Fubk test card and footage of relief supply flights and war reports. Weak 'EBU Sarajevo' ident colour bars appeared on July 13 at 1730 on Intelsat 601 27°W at 11.10GHz vertical showing that the war feeds can appear anywhere. Just above this signal was 'Goonhilly ES' fired up and running on colour bars 11.13GHz (ES stands for Earth Station).

Incidentally VisEurope intend are to encrypt with Videocrypt during August which will put an end to viewing their output - apparently there is a concern that broadcasters elsewhere in Europe are 'lifting' material and retransmitting as their own sourced news. This point is proved by Sporadic-E observations in Band I when both CNN and Children's Channel have been received in the UK from Italian private stations that have lifted Astra's downlink.

The French lorry blockages also commanded satellite time in early July notably 'ITN ENG-3' with live reports from the streets of Lille inserting into the UK news. Other SNG feeds witnessed the past few weeks have included 'Satellite News Gathering D-28 Satranet Schweden' and 'Hol 4 Intrax'. Maxat is a newly established Central London broadcasting facility that specialise in organising news feeds and links either broadcast or corporate between points A and B, leasing transponder feeds as and when required. Often to be seen airing their own identification slide over 13°E at 12.56GHz horizontal - and carrying WTN news compilations.

A satellite often forgotten is TELE X at 5°E though operating only at Telecom Band 12.5-12.7GHz. and seen carrying TV3 programming (12.64GHz) for Scandinavia. **David Thorpe** writes in the Transponder bulletin that clear but weak PAL transmissions have been seen on 12.61, 12.66 and 12.72GHz - signal are circularly polarised.

For full details on the Transponder satellite news bulletin write with s.a.e. to PO Box 113, CREWE, Cheshire CW2 7DS.

The mystery of the 'ZOO TV' test card that was seen over Eutelsat II F1 during a concert broadcast has been solved by reader **Howard Seddon** from Wigan, apparently this is the name given to the latest concert tour of the pop group 'U2' and would be a live telecast of the concert.

Our C Band expert **Des Sherwell** from Berkshire has been monitoring signals from Intelsat 603 27°W and has seen the African channel M NET sharing the BBC World Service TV transponder (3.64GHz) with various test programmes and signals in the clear, normally M NET use Irdeto scrambling - thought is that M NET are to go onto 27°W to gain improved coverage over Africa. A long letter from **Nicholas Earley** (Victoria, Australia) telling of the considerable debate over the future of satellite PAY-TV now that the government have allowed more PAY-TV bidders to apply - final tenders have to be lodged by end October with the successful winner announced the following month, already over 160 companies have expressed interest - both home grown and overseas. Initially 4 channels will be allowed though increasing in later years.

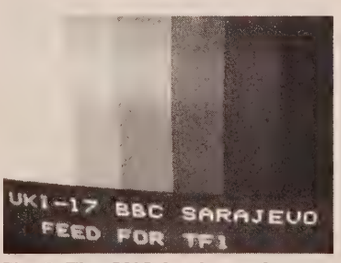

Fig. 2: The SNG feed out of Sarajevo airport during the UN troop landings.

Fig. 3: The MAXAT identification slide carried over Eutelsat II F1.

amateur bands round-up

Paul Essery GW3KFE, PO Box 4, Newtown, Powys SY16 1ZZ

A couple of cries for help first. **Harry Davies** in Liverpool has been given a Sanyo RP880, and wants to know how the crystal marker is used. It has a switch, inscribed 'OFF - 1MHz - 100kHz - 10kHz'. By switching to the 1MHz position, you will hear a signal at every 1MHz up the band: 14MHz, 15MHz, 16MHz and so on. At the 100kHz position, the pips will be at every 100kHz: 14.0, 14.1, 14.2MHz, etc. Now switch to the 10kHz position and you will find the pips every 10kHz up the band: 14.1, 14.11, 14.12MHz. Your own ears and eyes will enable you to interpolate between the 10kHz points to better than 1kHz. Since the receiver is 'general coverage', there will be a standard-frequency station available on one band or another; 2.5, 5, 10, 15MHz for example; the crystal calibrator will have an internal trimmer so you can tune it for zero-beat against one of these. In normal use the calibrator is preferably tuned for zero-beat in the s.s.b./c.w. position if there is one on the receiver; and of course switched off when not actually in use!

Gerald Bramwell in Manchester is in problems too; his problem is that strong broadcast signals are appearing on every amateur band. What can be done to stop the problem? The implication in the letter is of something changing in the station, as Gerald hasn't noted the problem in previous letters. Secondly, all bands are affected. Thirdly, conditions up to the time of the letter haven't been all that good. This suggests that possibly a signal is appearing inside the receiver at an i.f. Once it is in the i.f., no amount of twiddling the antenna tuner, or attenuator will shift it. I recall the effect on the old Eddystone S640 and also the Minimitter receivers. As a first shot, I would go right through the shack, looking at ALL connections for a dry or bad joint in wiring. Likewise the wire of the actual antenna and earth line. Bear in mind a soldered joint contains the copper wire in contact with tin and lead so electrolytic corrosion can occur in outside conditions unless the soldered joint is adequately protected from the weather. Any bad joint can form a diode and harmonic generator. Each item in the shack should be separately earthed, like the prongs of a fork coming to the handle which constitutes the main line to ground. If you have a single wire which runs from earth to unit to unit, you may have a resistance loop which might couple a signal from one unit to another.

Turning to Gerald's report, and summarising a bit, on Top Band, his c.w. reception included G portable and home stations, LY2BVJ, ON4ACG, plus sideband from YL2GUY, RT5UO, RB5QRW, I1JQJ, 7X2DG, I2UIY and Gs. On Eighty we find lots of calls, ranging from W9CM, 4J1FS (s.s.b. and c.w.), ES6MO, UF6FKW, OH0/SM0IHR, VK6LK, TA4A, VK2CWG, 9X5NH, PP7HG, Z21AS, PP5JR, VK3DZM, 7X2BK, and of course the European signals. At 7MHz, we find members of the old USSR, Europeans, PP5WG, OD5/SP1MHV, A92BE, ZS5BH, EA9LZ, CX2LZ, PT7CB, 7X2DG, 5N0SAI and ZL4BO. 14MHz shows with a different colour - green for RTTY and various Yanks, Europeans, JA3REK, CN8NP, while sideband was copied from VE1EOS, VE2OC, KJ2Z, N8NVU, VE2WY, UA9YDR, RA9SAC, V85GA, 8R1UN, PY2CVC, FY5FX, YV5LIX, CE4LF/P/3 and EL2PP. For 18MHz we see 4J1FS on both modes, Ws and VEs, 7X2WCK, JR1MAF, PJ9EE, LU5GO, 7Z2AB, ZP5XHM, 9Y4NW, FM5CD, YV5DPO, FK5CP, P4/PA3ECI. At 21MHz we see EUs, a crop of Ws including K0PT, UI9ACP, assorted EUs, PY1GTC, CE5BPE, PT7AZ, P4/N4BWS, PT2JBA (c.w.), CE3OYS, LU1NH, VP2MR, ZW1NEZ, HK3MCM (RTTY), EA9HAC, CN8AS, JI8KNF, CE3US, 9Y4VUX (c.w.), PY2BTY, KP4DQ and F6BLQ/D2. 24 and 30MHz show just how conditions have fallen away this summer, With just one W on the former and none on the latter. Hence on Ten it was mainly the f.m. phone Gerald listened to with a mite of RTTY and c.w. thrown in for luck.

Goof!

When mentioning the Geoff Watts lists in the July issue, I quoted an outdated price. Double-sided versions are £1.25, the single-sided ones £1.50 each. The available lists include the 15-page *CQ/ITU Zones Guide*, which lists all the prefixes in each zone plus a list of other prefixes and 'specials' used by that county. The *Oblast Guide* is now 15 pages, listing each oblast in numerical order and prefix order, USSR awards, CQ-M contest details, and 250 QSL Bureaux. The 14 pages of the *DXCC Countries Guide* lists the DXCC countries alphabetically, present and past prefixes back to 1945, previous names of countries, detailed list of deleted countries. Very useful if you have been QRT for a while. Then lastly the old standby, the *Radio Amateur Prefix-Country-Zone List* which gives, in a single line, the prefix, ITU and CQ Zones, continent, DXCC status and so on. I hope I got it right this time!

Nets!

For the listener, nets have a lot going, says **Simon Griggs** of Chelmsford, who likes the 2300Z offerings of the ET net, 14.172MHz, and the 14.254 one run by WA4JTK. Between them these two have yanked Simon's country score up to 104 - a C31 being the magic 100th. Outside, a 21MHz inverted-vee dipole has gone up to supplement the end-fed. Simon listens to the c.w. as well as the sideband. 7MHz yielded EA8TH, VP2MLD (c.w.), VP2EY (c.w.) and VE1IKY also on the key. 14MHz gave a lot, for instance, VEs, SV5TS, EA8BTA, P43LJP, YV5ANF, JY3ZH, JR4SAY, 4X7S, 9H1EL, 9Y4CR, PY1NEZ, 4X70YM - which must be a 'special' with that 70 in the middle - RA9CF, 5B4ADA, 9K2MC, OD5ZZ, FM5WE, YV5ENI, W3/G4CNY at Dayton, A71BY, 4U1UN, YV2BYU, TA5C, VK3BRT, HI3UNE, OD5WS, HK1YJ, G4SMC/8R1, YV5ANF, P43LJP, VK6VZ, 5N8HEM, UZ9XWH, TA54E, HK6QJN, WA2HMT/MM in phone-patches, OD5RAK, PY6AAZ, 9K2TC, 4X4JU, HZ1AB, UL7JEG, VE7IG, SV5TS, LU2AH, 9K2GS, UC6A/G4XLA, YS1EJ and HP1BPH all on sideband, plus c.w. from KA1EFO, ST3AK, PZ1DW, PY2UR, LU1MQE, CE1DMA, LU4GPL, CP6RP, 4S7NR, PP5LN, TU2XP, W1AW (The ARRL HQ station), VO1VQ, ZA1TAJ, CO7PG, VE1CAB, PP2IJW, UV9OMH, UA9FJ, UI8FM, KP4TE, LU4FD, UM8MGM and PP7CAR. 21MHz accounted for PY2HY, YC7BVY, LU4GP (c.w.), PT7WX, UA9XMC, 5H3AS and 28MHz PY1RR, VU2OO, 4X4FR, TA7KA and SV2AVP.

E. H. Trowell comes next. On Top Band Ted did note ON7BW on sideband, plus GU/PA0ERA on c.w. 7MHz c.w. yielded UD6D/Y42DA, UF7FWW, ZA/KA6ZYF, all on the key, while 10MHz produced HB9T who used to be well-known on Top Band and now still sends good Morse at 81, TK/G3PJT, ZL4HB, OH0BBF and ZA1TAC. 14MHz gave with PZ1DW, UF6FJ, ES0Z (Isle of Hiiumaa), HA5/OZ1KLD/P, VE1ST/NA1V, 4S7WP, LU1ICX, RL0P/RW0AJ, while 18MHz offered s.s.b. to OX/DL3LAB, c.w. to 5T5CJ, AM1EK (Pechon Is), FY5FP, HB9AMZ, OX3XR, DL2VKA and DJ2HK. As for 21MHz, the keying of ZA1A, ZA1M, JA5ONK, JA5NPU, HK3RQ, JA7FTR, JA0LFV, UA0FZ, AB4HM, YN1CC, ZC4ST, PY5PX, W5/HK0BKX, TA3D, IS0YUJ/IM0, TK/DL8NBH, IK1QQU, UM8MZ, UA9AB, HB9EW, AM5WM while 28MHz c.w. gave FY/ON4ZD, HB9DAX and AM25LAV.

How nice to get a letter from a novice licensee! **John Hemming** started with 2E1ANW and now runs 2W0ACN, after some 'elmering' from G4LQF of the G-QRP Club. On the transmit side, 21.115MHz from an OXO transmitter and a PA, home-brewed, gives 2W out, to an simple dipole mounted in a balcony; on 3.5MHz a Howes rig, Howes or B40 receivers plus 80 metres of wire totally contained in the flat's loft space worked via the January *PW* a.t.u. to a counterpoise about 6m long. This sounds pretty unpromising but already John has 'got across the Pond' on 21MHz to KB2LLN in Trenton, NJ. No doubt his listening activity has helped a lot.

Deadline

The address, as ever, is given above; the dates are for your letters to arrive, on September 5, October 10, and November 7.

BIDEFORD BAY A.R.C. GB2DVN
***"DEVONIA"* STAGE 1B**

MILK RACE
25 MAY 1992
(BANK HOLIDAY MONDAY)
Stage Finish at Bideford

STAGE WINNER – JACEK MICKLEWICZ (POLAND)

airband

Godfrey Manning G4GLM
c/o The Godfrey Manning Aircraft Museum,
63 The Drive, Edgware, Middlesex HA8 8PS

I would like to know something about your Museum," writes **Bill Solley** (Bristol). It's very small, but technical. I aim to demonstrate many of the principles of flight and navigation. To make an appointment to view, call me on the number given at the end of this column. Bill goes back a bit - his career in aeronautical engineering spanned 1935-1975 and took in the Swordfish, Brabazon, Britannia and Concorde. An enviable catalogue.

Bill asks a general point about the photographs that appear in 'Airband'. Mostly they are taken from a stock and fill up odd gaps on the page. They give an attractive aeronautical appearance to the column but are not often directly connected with the text. I'm sorry that confusing code numbers (like "EGSX") appeared in the titles recently; they are only intended as a reference during the preparation of the article and weren't meant to be seen. As far as the new Chichester-Miles venture is concerned (see photo, July) I've not heard of a connection with the original Miles aircraft company (where Bill worked for a time).

Back to aeronautical radio, and Bill raises a valid point about abbreviated callsigns. Here are some examples. "Speedbird 123" may not be abbreviated but "Concorde Golf Bravo Oscar Alpha Charlie" may be shortened to "Concorde Alpha Charlie." Likewise, "Golf Bravo Golf Lima Mike" may become "Golf Lima Mike." Further reduction to "Lima Mike" is a bad habit and is not officially permitted - but people do it. On first contact with a controller, pilots must use the full callsign; if the controller replies with an abbreviation then, and only then, may the pilot also abbreviate. This arrangement has been in operation for quite some time - at least a quarter of a century.

Aeronautical Happenings

Down in Cheltenham, **Anne Reed RS 87871/G-20126** had an exciting time at the end of June when a rare aircraft landed at Gloucestershire. CCCP-74010 is a Ukrainian Antonov 74 which Anne photographed when it arrived to bring an engine for local aerospace companies to evaluate. For the return flight it was loaded with gifts of aid. As you can see from the photo, the jet engines are mounted above the high wings. Despite its ungainly appearance, this configuration has the aerodynamic advantage of good short-field performance which might be an advantage at undeveloped airstrips. The high engines are also less susceptible to foreign body ingestion when operating off unpaved surfaces.

The Transatlantic Balloon Race will be in progress when this issue appears. Anne found that competitors wouldn't discuss possible h.f. channels with her as, last time, too many 'amateurs' blocked the frequencies with well-intentioned good wishes. This does lead me to question exactly who sent these transmissions as true amateur equipment would not be able to transmit in the h.f. airbands. Alternatively, were the balloonists encroaching on amateur allocations - in which case, hard luck?

Over to the Isle of Man and Mrs. B. reports that the CAA have refurbished the Snaefell relay. She went flying at Jurby in both a Cessna and, with a member of the British Women Pilots' Association in command, ultra-light G-STRK. Hopefully the flight went better than that of a Manx Jetstream. Mrs. B's. video camera captured its engine-out landing after it returned to Ronaldsway with a malfunction. All went well, with no injuries, but this aircraft type is unable to taxi on one engine and had to be towed.

Navigation

Mike Bennett (Datchet) has found the outer marker for 09L at Heathrow. It's immediately south-east of Datchet railway station. In return, I'll locate various reporting points that Mike asks about. WILLO is at N50°59.1' W000°11.4' or, alternatively, on the 109° Midhurst radial at 17nm distance; it forms part of the Gatwick approach. LOREL is at N52°00.8' W000°03.1' or, alternatively, on the 345° Lambourne radial at 16nm from Brookmans Park; it is on the Luton approach. BIRCH is near Birmingham but my charts don't cover it, unfortunately.

On the subject of charts, and in particular the free ones from the CAA (details were in June's 'Airband'), a reader from West Glamorgan points out that RAC 3-0-1 is temporarily out of print.

I have also discovered that RAC 5-0-2 will not be re-issued once the current version goes out of date. If you send a stamped envelope for the *CAA Publications Catalogue* please be advised that it has grown and now weighs 150g (45p for 1st Class and 34p for 2nd).

My *Aerad London Area Chart* agrees with **Tim Binder** (East Grinstead) that Gatwick outbounds may call London Airways on 123.9MHz if departing via Midhurst, Compton or Southampton. This frequency also handles arrivals via WILLO. What the chart doesn't show is an apparently new (or is it just temporary?) frequency of 121.32 for the same purpose. Tim hopes to find many of the frequencies he requires in *Air Traffic Radio* (by Ken Davies available from *SWM* Book Service). Unfortunately, as I mentioned last month, all military u.h.f. allocations have changed. The book covers h.f., v.h.f. and u.h.f. But, in common with all such guide books, the u.h.f. section will be wrong unless updated since mid-May.

Follow-Ups and Foul-Ups

Tim Christian (North Walsham) clarifies something I didn't quite get right in June. Norwich use 118.475 exclusively for ground controlled approaches; 119.35MHz is the radar for all other purposes including zone transits.

Additional information on Scottish Airways (June) comes from **Peter Lewthwaite** (Northumberland) and **Duncan Pettett GM1BVT** (Alva). Paired with the main h.f. channels are back-up frequencies as follows. Paired with 5.616MHz are 2.899 and 8.864MHz; with 5.649MHz are 2.872 and 8.879MHz; with 4.675MHz are 2.971 and 8.891MHz. Higher frequencies are favoured by day, lower at night.

On the American side, Gander has an allocation at 127.9MHz (as listed in the *RAF Supplement*) but the location of the relay is not shown; how can it cover out to 40°W if based on the coast? Ikerasassuaq (Prins Christian Sund) is not the answer - only an n.d.b. is listed here.

Flights from the south for Aberdeen and Inverness work London (131.05 or 128.05), then Scottish (135.85 then 124.5MHz) and finally their terminals.

Going across the North Sea to Scandinavia? Scottish take the flight on 134.77 (above FL245). Flights to Iceland work Scottish first (135.85) and then, on passing 61CN, Iceland on 132.2MHz.

Information Sources

How can you keep pace with the ever-changing callsign structures adopted by the larger airlines? **W. Sutcliffe** (Bradford) is finding this as difficult as the rest of us! There are some things that will help, though. First, re-read January's 'Airband' where I listed some new Speedbird flight numbers under the heading 'Changes to Air Traffic Control'. During a flight I went on I noticed that the new callsign was derived from the conventional flight number. Next, buy two reference books each year. *Flight Routings* (T.T. and S.J. Williams) is available from *SWM* Book Service. *Airport Timetables UK* (Clapperton, Hollick & Taylor) is from Airtime Publishing Ltd., 13 The Hollows, Long Eaton, Nottinghamshire NG10 2ES. These both list flight numbers, which is a help. Lastly, be nice to your local travel agent, who might give you a redundant copy of the *ABC World Airways Guide* when this is renewed at the end of a month.

A special case is the British Airways Shuttle callsigns. All these flights have Heathrow as one terminal. The number designates the remote terminal, and the letter distinguishes successive flights on that route each day. Numbers are as follows: 2 = Manchester outbound, 3 = return; 4 = Belfast outbound, 5 = return; 6 = Glasgow outbound, 7 = return; 8 = Edinburgh outbound, 9 = return. So Shuttle 8 Alpha would be the first flight of the day from Heathrow to Edinburgh.

Frequency and Operational News

Listed in the 6/92 edition of GASIL from the CAA are various new n.d.b. frequencies as follows (all kHz): Belfast Harbour, now known as Belfast City (HB, 420); Bembridge (IW, 426); Blackpool (BPL, 420); Newcastle (WZ, 416); Nottingham (NOT, 430); Shobdon (SH, 426) and St. Mawgan (SM, 356.5).

Also, a communications change. Stansted Tower is now on 122.9MHz. For the record, arrivals at the PFA Rally at Wroughton were more efficient this year with improved procedures. Frequencies were: a.t.i.s. 130.675, Arrivals (paved runway) 132.9, Arrivals (grass runway) 129.25, Ground 121.925, Air/Ground Radio 123.225MHz. I missed the event this year, did all go smoothly?

LAR-91-1 CCCP-74010 taxying from the runway at Gloucestershire. *Anne Reed*

CONTINUED ON PAGE 53 ➡

scanning

Alan Gardener
PO Box 1000, Eastleigh, Hants SO5 5HB.

I have now had a chance to try out the new AOR AR1500 hand-held I mentioned a couple of months ago. In many ways this model is similar to the popular AR1000/2000 series but with one or two notable differences. The most obvious change is in the case styling, the new model is much smaller than I had anticipated measuring only 160 x 55 x 40mm which makes it just a bit larger and slightly longer than the tiny Icom IC-R1.

The top of the receiver is rather tightly packed with BNC antenna connector, rotary volume, tuning and concentric b.f.o./squelch controls as well as push buttons for the attenuator, bfo on/off and keyboard lock functions. The Keyboard is small, but the well spaced raised buttons make entries relatively easy. A reset switch on flying leads has been provided in the battery compartment, the reset procedure being similar to that of the AR1000/2000 with the need to enter a series of commands from the keyboard after a reset has been performed. For the most part the features offered by the receiver are the same as those available on the AR1000/2000 series, however some of the keyboard commands have been simplified making operation that bit easier.

The main new feature is the addition of a b.f.o. circuit which permits the reception of s.s.b. and c.w. transmissions. This is pretty well essential if you want to receive anything other than broadcast stations on the short wave bands. In order to receive s.s.b. signals the receiver has to be used in the am mode with the b.f.o. switched on by means of the button on the top panel. The smallest tuning step that can be selected is 5kHz so use has to be made of the rotary b.f.o. tuning control on the top panel if you are receiving signals that do not appear exactly on frequency. In practice this is not as big a problem as it might seem. The largest frequency error is only likely to be half the tuning step size (2.5kHz) and the correct tuning point can usually be found very quickly. I had great fun tuning around various short wave frequencies and could hear numerous Amateur and Utility stations operating from far flung parts of the globe with the supplied v.h.f./u.h.f. antenna.

The other new feature is the ability of the receiver to automatically search a pre-defined frequency range and store any active frequencies in one of the memory banks. This is a great way to find new or elusive frequencies, as the scanner can be left running unattended and you can examine the contents of the memory bank at your leisure.

The receiver is supplied with an internal rechargeable NiCad battery pack and comes complete with both an a.c. charger unit and a 12V d.c. supply lead, alternatively you can unplug the NiCad pack and use the additional dry battery case if you wish. This last option makes it easy to carry a spare set of dry cells around with you if you are attending an important event, as it's an unwritten rule that all hand-held scanner batteries go flat at the worst possible moment.

I found the receive sensitivity to be good but I did experience some problems with interference from a commercial p.m.r. base station which operates a few hundred metres away from my house. As you may have expected connecting an external antenna made the problem worse and produced spurious signals on various frequencies. Switching in the attenuator solved the problem but only at the expense of reduced sensitivity.

To summarise I would say that the new model offers a lot of features at a reasonable price - especially the b.f.o. and search and store functions. These make it particularly attractive to listeners with an interest in both short wave and v.h.f./u.h.f. monitoring. However the r.f. performance is slightly worse than that of the AR1000/2000 series and this should be weighed against the additional features when choosing the model most suited to your requirements.

As well as the AR1500 AOR are also working on several new models including a high performance, budget priced hf communications receiver and a top of the range v.h.f./u.h.f. receiver in a more conventionally styled package which should give the opposition a good run for their money. Development work is also continuing on a couple of compact antennas, which should be available before too long.

My thanks to AOR UK Ltd for the loan of the AR1500, you can contact them at Adam Bede High Tech Centre, Derby Road, Wirksworth, Derbys DE4 4BG, or ring (0629) 825926 if you require further information.

Special Events

Several readers have written asking about the frequencies used during special events such as cycle races, car rallies and TV outside broadcasts etc. This is rather a difficult question to answer as a whole range of frequencies are used depending on the type of communication required. As most equipment is usually hired for a specific event it is always worthwhile checking the short term hire frequencies for activity. The majority of these are grouped around 169MHz and a new allocation at 164MHz. If the equipment is owned by the people operating it or if it is likely to used at several different events then the users may have been allocated a specific frequency in one of the many bands set aside for p.m.r. use. If the equipment is also likely to be used in other countries or belongs to a foreign team then occasionally frequencies outside the normal p.m.r. bands may be allocated on a temporary basis.

As well as voice communications, data transmissions are also becoming more common. Typical uses of this include sending engine performance data back to the pits in formula 1 racing and contestants positions and times back to race controls during round Britain races. As well as involvement with the competitors a fair amount of communication is also required for spectator control, parking, maintenance services and security. Once again these generally use short term hire equipment although some large stadiums and race-courses may well have their own frequencies and equipment.

If the event is important enough there are almost certain to be Radio and TV companies in attendance. These usually employ a large number of radio communication channels for radio microphones, co-ordination of site activities and for studio to site communications. These are often found on very odd frequencies as they tend to be slotted into parts of the spectrum well away from other commercial users in order to reduce the possibility of interference.

I would be very interested to hear from any readers who have monitored communications at events such as these for inclusion in a future column.

New Frequencies

Forgive me for mentioning the *UK Scanning Directory* yet again but the second edition is now available. The majority of contents are pretty much the same as before, however the section relating to the u.h.f. military airband has been revised to include the new frequency allocations. The format of the publication has also changed, the new version is A5 sized which makes it much more convenient to use. You can contact Interproducts, 8 Abbot Street, Perth PH2 0EB, Tel: (0738) 441199 for further details.

Searching the Bands

Whilst we are on the subject of Military airband monitoring **Jack Redfern** of North Yorkshire has written to ask me about the use of the 'Search' function on his hand-held scanner. He has been monitoring the u.h.f. military airband recently but he finds that he hardly ever hears anything. He has to tried to find locally used frequencies by automatically searching the band but with very little success. He wonders what he is doing wrong and asks if I can offer any suggestions.

You are probably not doing anything wrong but you may be able to improve your chances of hearing some activity. The first step is to try and do a bit of

The new AOR AR1500.

detective work. Although the following suggestions relate mostly to military airband monitoring many of them will also apply to monitoring other users of the radio spectrum. A good frequency guide (like the one mentioned previously) is usually the key to locating elusive frequencies. Check that the information is up to date as there have been many changes made recently, for example the military airband frequencies were revised about 3 months ago, so check that any publication is up to date before buying. If you look at the way the frequencies have been allocated you may find that there are large blocks which have very few active channels. In the military airband these are used for other purposes such as navigational aids or satellite up and down links. If you forget about these parts of the band and concentrate on the more active portions you are already increasing your chances of success. Sometimes the inverse of this technique is true, you may occasionally find that interesting signals appear in quiet blocks of frequencies adjacent to those in more common use.

The next tip is to search the band in small chunks. Don't try to cover the whole band in one sweep, even with the fastest scanner this will take a considerable period of time. As most transmissions tend to be very brief you need to maximise your chances of detecting them. As a rule I would never try to search a band wider than 10MHz in one go, in fact I usually limit it to around 1MHz. This means that each

frequency is checked every few seconds, a lot depends on the average length of transmissions. If they tend to last for several seconds then you could try increasing the size of the search band. Concentrate on just one part of the band for a few days and make a note of all the active frequencies that you find. You'll be surprised at how quickly you build up a comprehensive list of activity in your area.

Tuning step size is another important factor, always try and choose the most suitable size for the band being searched. For example, the military airband uses 50kHz channel spacings, if you tuned in 25kHz steps it would take the scanner twice as long, or 4 times as long with 12.5kHz steps and 10 times as long with 5kHz steps. If the channels are offset by a small amount say 6.25 or 12.5kHz then you may have to tune in smaller step sizes unless your scanner can cope with the offset frequency. Typical examples of such offsets include the 27MHz CB allocation, 138MHz fuel and power industries band, and 900MHz cellular telephone channels.

Another useful tip is that the more established users of the radio spectrum tend to have wider gaps between consecutive channels which are allocated to them. This is because channel spacings have been halved on several occasions in order to take advantage of improvements in equipment design and the increasing demand for more channels. Originally 100kHz channel spacings were used this was then reduced to 50, then 25 and currently 12.5kHz. Some users have been given additional frequencies in between their original channels. It is for this reason that you sometimes find individual company channel numbers run in a sequence like 1, 4, 2, 5, 3 when listed in frequency order.

Don't forget that a lot of transmissions are only present during working hours, that is to say 9am - 5pm, Monday to Friday. This even applies to the military as most services employ a large number of civilian staff who work normal hours. You have to choose your monitoring period to suit the type of activity you wish to hear. Many keen scanning enthusiasts even arrange holidays to coincide with specific events so it is always worthwhile keeping an eye as well as an ear open for details of forthcoming attractions.

If you can't be near your scanner during the day then why not invest in some form of automatic tape recorder. By connecting it to your scanner and arranging for it to only record when a signal or speech is present you can condense several hours activity on to one tape, ready for you to replay on your return home. If you want to get really sophisticated then several of the computer control programs now available have automatic logging features. By using such a programme you can see which channels have had the strongest (and therefore the most local) signals present, which are the most active and at what time of the day they are at their busiest. This technique is known as 'Traffic Analysis' and it can often tell you a lot about the user of a particular frequency without you actually ever needing to listen to them. For example, taxi companies are generally very busy at pub closing times, security guards tend to make calls at regular intervals during the night, Breakdown and recovery services get swamped with calls during very wet weather, etc.

I hope that these suggestions have given you some food for thought - if you can add any additional tips of your own why not drop me a line and share them. Until next month - Good Listening.

Airband 51 ➨

A show that I did get to was RAF Halton in Buckinghamshire. The enlightened operators here displayed the frequencies in use for the day (132.9 and 369.6MHz). A further sign on the control caravan said "Bates - 2 Sets." I naïvely assumed this to be something to do with the manufacturers of the radio equipment, until Chris reminded me that Wimbledon was in progress!

On the subject of shows, the Red Arrows still apparently talk to each other on 243.45MHz whilst displaying.

More information from the CAA appears in AIC 55/1992. Dunsfold operates a Danger Area Activity Information Service (DAAIS) for EGD035 (Fraser Ranges) on the new u.h.f. channel 367.375MHz. Eastern Radar, on 135.275 or 299.975MHz, now provides a Danger Area Crossing Service for EGD316/317 (Neatishead). The new EGD703 (Tain) DAAIS frequency is 122.75MHz. When such services are unavailable, the usual Flight Information Region should be contacted.

Two aerodrome changes in AIC 56/1992. At Bristol, runway 15/33 has been withdrawn. Southend now has i.l.s./d.m.e. on runway 24.

The next three deadlines (for topical information) are September 4, October 9 and November 6. Replies always appear in this column and it is regretted that no direct correspondence is possible. All letters to 'Airband,' c/o The Godfrey Manning Aircraft Museum, 63 The Drive, Edgware, Middlesex HA8 8PS. Genuinely urgent information/enquiries: 081-958 5113.

LAR-91-2 CCCP-74010 loading a cargo of aid.
Anne Reed

Heathrow Procedures

London (Heathrow) is not, despite the claims that some people make to the contrary, the world's busiest airport. It comes nowhere close to Chicago O'Hare and similar USA terminals. In the States, though, it is about as far across the continent from east to west as it is across the ocean from the UK to the east coast. Hence, a high proportion of flights from American terminals are domestic. Heathrow has a larger ratio of international flights and it just so happens that it has more international (but not domestic) movements than anywhere else.

What happens when your flight arrives at Heathrow? Looking on a radio-navigation chart you will find that the airport is surrounded by four v.o.r. beacons. They are Bovingdon in the north-west, Lambourne to the north-east, Biggin Hill over in the south-east and Ockham to the south-west. Aircraft coming off airways are handed over by London Airways when approaching the appropriate arrival beacon. At busy times aircraft can be held in the 'stacks' of which there is one based at each beacon.

When the arrival is cleared to continue, it must be merged with the other traffic. Here is a typical example, although things do change with varying traffic volumes and circumstances. No. 1 director joins the Ockham and Biggin traffic on 119.5MHz. Also, the Bovingdon and Lambourne arrivals are joined on 119.2. Control is handed off to No. 2 director so that the two streams can be further condensed into one final approach sequence on 120.4MHz. Finally, shortly before (or just when) the outer marker is reached, the flights call the Tower (118.7MHz) for clearance to land. On vacating the runway, Ground is contacted (121.9) for taxi instructions.

Departures first request a slot time from Clearance Delivery (121.7MHz) but contact Ground for push and start. Taxi instructions involve moving from one numbered block to another and, if you travel from Heathrow, you will see yellow signposts with black lettering telling you the number of the block that you're leaving and the one you're entering. Ground might also switch green taxyway centre-line lights on and off, in which case the instruction given is 'Follow the greens'.

Again, tower has to give clearance to enter the runway (at busy times, separate frequencies operate for arrivals and departures). Initial routing follows a Standard Instrument Departure (SID), a track defined by distances and bearings from various beacons. To study these you need the charts for the airport but, to give you some idea, there are SIDs terminating at Brookmans Park, Compton, Daventry, Dover, Mayfield, Midhurst and Southampton. From here, the airways route is followed to the destination. Control is handed to London Airways very soon after take-off.

MARTIN LYNCH – IS TWO YEARS OLD TODAY! ...

From the person who put the "stuffing" back into AMATEUR RADIO RETAILING, MARTIN LYNCH is celebrating his 2nd birthday at the EALING shop.

For those of you who couldn't make it to my party last year, no worries! Here's another one for you to go to. The official day is SATURDAY, the 12th of SEPTEMBER. Open from 8 o'clock to 8 o'clock there is of course FOOD and DRINK, but most of all I'll be TALKING TURKEY even more than usual with HUGE SAVINGS ACROSS THE RANGE. NEW & USED, it doesn't matter, OFFER ME A SENSIBLE PRICE AND WE'VE GOT A DEAL! If you can't make it to EALING, come and see me and the LYNCH MOB on SUNDAY, at the famous B.A.R.T.G. RALLY at Sandown Park in Esher, Surrey. For all of you who are into PACKET and Data transmissions don't miss it – it's one of the biggest events in the rally calender! Remember to bring your PART-EXCHANGES along. I'm still paying top money either to buy out-right or as a part exchange against another item. Finally, thanks for a great first TWO years at Northfields. Without your help, I couldn't have got as far as I have today. Without you I haven't got a business. I'll never forget that.

JRC NRD 535 **£1149**
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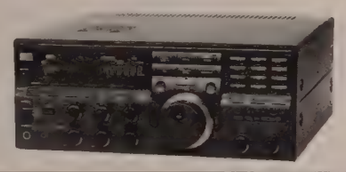

Icom IC-R72E **£669**
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Drake R8E **£949**
Receiver with most options fitted as standard

Yupiteru MVT8000 **£279**
Mobile or base wideband scanner

Yupiteru MVT7000 **£269**
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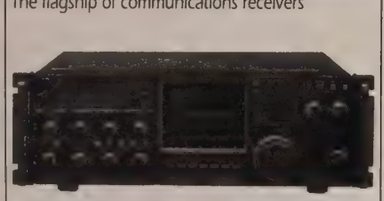
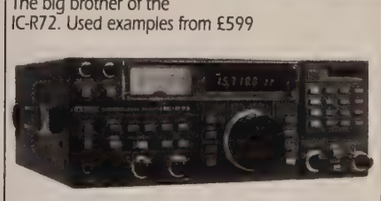
Icom IC-R1E **£329**
Still the world's smallest pocket scanner

Yaesu FRG8800 **£639**
Excellent HF receiver.
Used examples from £499

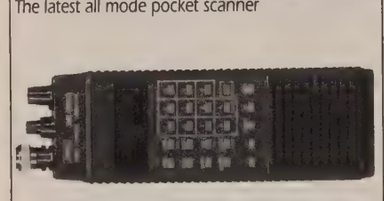
Icom IC-R9000 **£3895**
The flagship of communications receivers



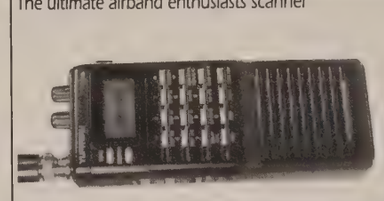
Icom IC-R71E **£849**
The big brother of the
IC-R72. Used examples from £599



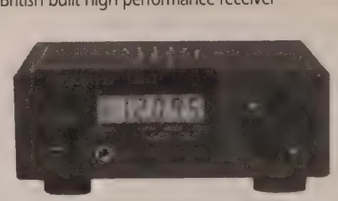
AOR 1500 **£279**
The latest all mode pocket scanner



Yupiteru VT225 **£229**
The ultimate airband enthusiasts scanner



Lowe HF150 **£325**
A British built high performance receiver



Kenwood R2000 **£529**
Kenwood's fine HF receiver.
Used examples from £399

AOR 2800 **£359**
Wideband all-mode base/mobile scanner

Kenwood R5000 **£885**
Top of the range shortwave receiver. Used examples from £649.

Lowe HF225 **£429**
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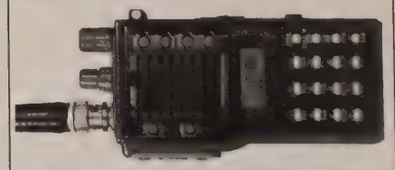
Icom IC-R7100HF **£1120**
50kHz-2GHz all-mode receiver. Icom approved conversion. See our other ad on page 49

Alinco DJ-X1E **£239**
Excellent miniature pocket receiver from Alinco



AOR 3000A **£725**
Genuine UK models at a special price for June only!

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MARTIN LYNCH
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AOR ICOM KENWOOD YAESU STANDARD

dxtv round-up

Ron Ham, Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

There is a lot more to receiving long-distance (DX) television signals than seeing a test-card from afar on the screen.

Very often, especially during Sporadic-E openings, DXers only get a glimpse of a picture from foreign parts and rely on their previous knowledge of signals and logos to identify its source. However, there are many changes going on in the world today and **Carl Bowen** (Strelley) rightly rings a bell of caution, by quoting an example that happened to him while watching signals from the CIS (Commonwealth of Independent States). A programme on Ch. R2 had 'CFI' in the top left hand corner of the screen which was due to the film being made by Canal France International and dubbed into Russian. "Another one to look for," said Carl, "is 'TEMA' in the bottom left corner" and he would like to know its source.

How often have you asked a friend or a disbeliever to see long distance television pictures only to find a blank screen when the visitor arrives? Well readers, **George Garden** (Edinburgh) hit the jack-pot on June 13 when he took a Dutch friend, keen to see European DX, to the top of Cairn O'Mounth to see what was about. As usual George had mounted his big u.h.f. Yagi and head-amplifiers in the back of his Ford pick-up truck so that he could adjust the beam-heading by hand through the rear window. Although there were no signals from Germany, he found a strong Belgian test-card (BRT TV1), in colour, around Ch. 45 and conveniently very strong pictures from Holland on Chs. 30 and 35. George and his guest were delighted to see the Wimbledon tennis from Holland and the British comedy, *George & Mildred*, spoken in English with Dutch subtitles.

While experimenting with a Band III, wide-band antenna and pre-amplifier mounted on a 7m high pole, Carl Bowen found he could often receive signals from Belgium (BRT & RTBF1), France (Canal+) and Holland's Nederland 1 from Roermond (Ch. E5) and Smilde (Ch.E6). A photograph of the 'RTBF1' test-card, **Fig. 1**, was discovered by **John Woodcock** (Basingstoke) when his film was recently developed. John received this from Wavre, Ch. E8, during a tropospheric opening on January 31. Under similar conditions early on January 3, **Lt. Col. Rana Roy**, received strong pictures from Pakistan TV (PTN), **Fig. 2**, at his home in Meerut, India on Ch. E11.

Band I

"The 'R' channels are proving most interesting this Sporadic-E season," wrote Carl Bowen, who, on June 22 sat through a commercial break, from Poland (TVP) on Ch. R3, "which included adverts for Pepsi-Cola and Imperial Leather soap". Like most other DXers, Carl had a good haul of Band I signals in June. He logged signals from the CIS on the 7th, 19th, 22nd & 23rd, Czechoslovakia (CST TV1) on the 7th, Italy (RAI) on the 6th, 9th, 22nd & 28th and Spain (TVE1) on days 3, 5-7, 17, 19 & 21.

Roughly on or around the days already mentioned **Bob Brooks** (Great Sutton) received test-cards and/or programmes from the CIS, Czechoslovakia, Hungary (MTV), Iceland (RUV), Italy, Norway, Poland, Portugal (RTP), Spain and Sweden (Kanal 1 Sverige). Among the programmes seen were adverts and cartoons from Spain, news from the CIS, Czechoslovakia, Italy, Norway and Spain and various sports from Norway plus a couple of unidentified sources. In New Radnor, **Simon Hamer** had very satisfying results from the June Sporadic-E. In addition to the regulars, Simon's log included Morocco (RTM) and Yugoslavia on the 5th, CIS on Chs. R1, 2, 3 & 4 on the 6th, 7th & 23rd and Nigeria (NTA) on the 20th.

While these events were in progress, **David Glenday** (Arbroath) received pictures from France, Portugal and Spain on the 1st, Germany and Spain on the 2nd, France and Spain on the 3rd, Russia (CT-1) on the 10th and Norway (NRK) on the 11th.

Band I In The Ukraine

Test-cards from Norge-Televerket, **Fig. 3** and the Norwegian regionals Bagn, Gamlem, Greipstad, Gulen, Kongsberg and Melhus were received in the Ukraine by Sergei Olejnik while various Sporadic-E openings were in progress between April 27 and June 6. In addition he logged Germany (ZDF) on April 27 & May 12, Holland (PTT-NED1) and Italy (RAI-1) on June 6, Jordan (JTV-AMMAN) **Fig. 4**, on June 4, Sweden (Kanal 1 Sverige) on the 9th and Syrian TV on May 13 (**Fig. 5**) and June 4 (**Fig. 6**) & 21. "It was fantastic to see it [Holland], **Fig. 7**, after midnight," said Sergei, who also had excellent sound with the pictures he received from Holland, Italy, Norway & Syria. I am always pleased to hear from readers overseas because it gives us in the UK a chance to learn how the various atmospheric disturbance effect our friends around the world.

Weather

Congratulations to **Malcolm Bell** on building a weather station at his home in Gloucester. So far he has assembled a Maplin digital thermometer module to read the air temperature and purchased a digital rain gauge and a max-min thermometer. The wind-speed and direction information senders, **Fig. 14**, were made by Malcolm using a fixed magnet to operate a reed switch connected to a l.e.d. display for the direction indicator and half-tennis balls for the cups to catch the wind to drive a 3V d.c. motor for the anemometer. The latter feeds a 50μA meter movement, which he has calibrated to the Beaufort scale.

The slightly rounded atmospheric pressure readings for the period May 26 to June 25, **Fig. 15**, were taken at noon and midnight from my own barograph. In June, I recorded 1.38in of rain with the heaviest fall of 0.50in, with thunder, on the 10th. This amount was well down on the 4.68in that fell in June 1991 and 3.22in in June 1990.

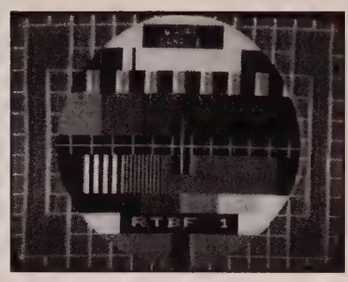


Fig. 1: Belgium (RTBF1).

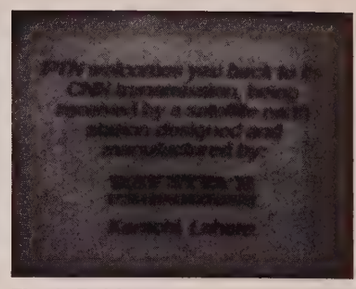


Fig. 2: Pakistan.

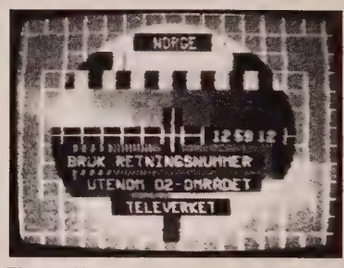


Fig. 3: Norway.

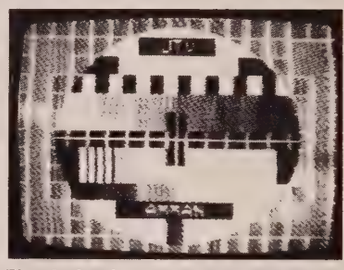


Fig. 4: Jordan.

Fig. 5: Syria.

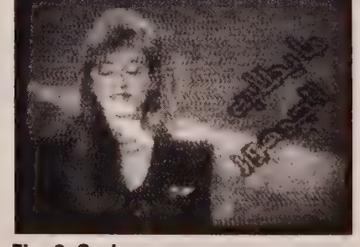


Fig. 6: Syria.

Fig. 7: Holland.

Tropospheric

While DXing on Cairn O' Mounth around 1830 on June 1, **George Garden** received strong colour pictures from Tyne Tees on Chs. 29 and 61. The latter "was as good as local", said George.

June proved a rewarding month of u.h.f. DX for **David Ashley** (Norwich) who watched programmes from Holland (NED1, 2 & 3) on days 3, 8, 9, 11-14, 20 & 25-30. Denmark's TV2 came up on the 1st, 8th, 12th-14th, 17th, 20th, 27th & 29th and various German stations were seen on the 11th (ARD1), 12th (ZDF), 13th (ARD1, N3, RTL+, SAT1 & ZDF), 20th (ARD1, N3, SAT1 & ZDF), 25th (ARD1), 26th-28th (ARD1, RTL+, SAT1 & ZDF) and 29th (ZDF).

From the UK he received pictures from Central TV on the 26th, Tyne Tees TV on the 9th & 11th, Yorkshire TV on the 1st, 12th & 26th and all three on the 8th, 13th & 27th-29th. At times he saw co-channel interference between Nederlands 1 and Tyne Tees and was only able to watch the latter after the Dutch station closed down. Early on the 14th, he saw an unidentified, negative image, logo above Ch. 65. David sent me a sketch of this logo, **Fig. 8**, which I reproduced, using the Windows Paint program, on my Amstrad 2286 computer, any ideas?

Bob Brooks logged a test-card from Denmark (DR) on Ch. E6 at 0740 on June 17. Carl Bowen received pictures in Band III from Belgium and Holland between 0700 & 0900 on the 28th. Simon Hamer had a good haul during the tropo-opening on the 12th. He logged pictures from Germany & Scandinavia in Band III and Denmark (TV2), Eire (RTL), France, Germany (ARD1, HESSEN3, MDR3, NDR3, RTL+, SAT1, WEST3 & ZDF), Holland & Sweden (TV4) in Bands IV and V.

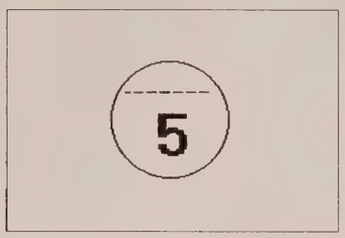


Fig. 8: Unidentified logo.

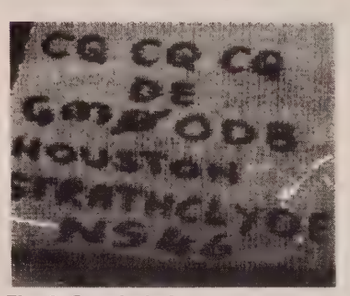


Fig. 9: Strathclyde.

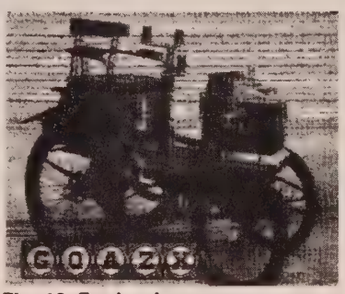


Fig. 10: England.

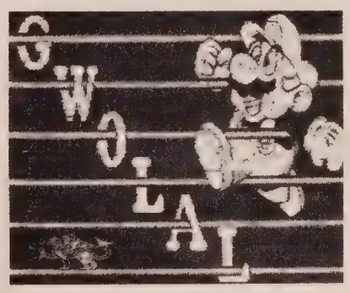
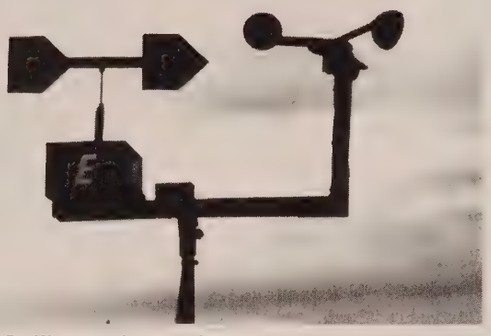


Fig. 11. Wales.

Fig. 12: Germany.

Fig. 13: Germany.



Malcolm Bell's weather station.

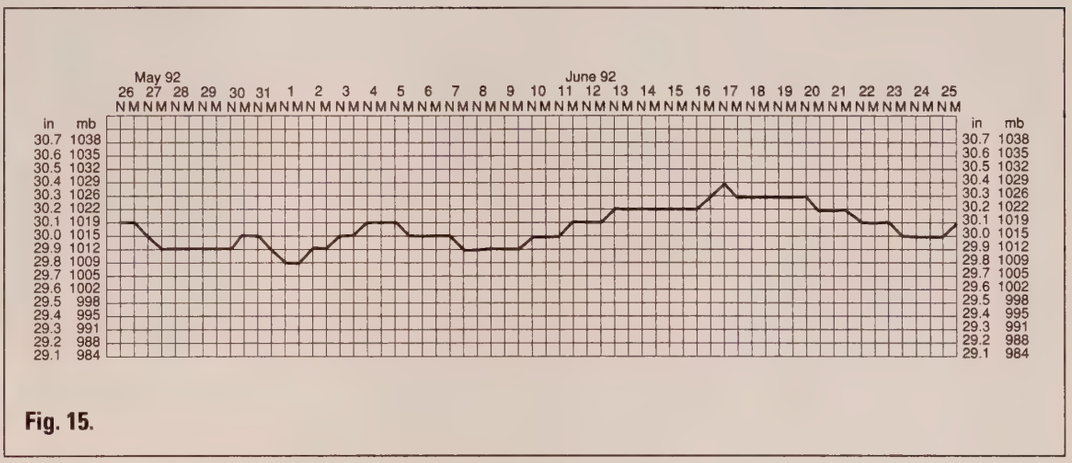


Fig. 15.

The tropospheric openings on June 1, 9,-13, 17, 20 & 27-29 meant a good haul of u.h.f. DX for David Glenday. On most of those days he logged pictures, often in good colour, from stations in Belgium, Denmark, Germany and Holland. "Excellent reception on the 12th with superb Dutch & Belgian DX bringing in TV5 Europe from Belgium for the first time on E56 - in colour!, plus Nederland 3 from Eys and Maastricht relays and AFN Soesterberg," wrote David who also saw a new Dutch test-card on the 29th with 'NOZEMA' in the upper panel and 'Nederland 3' in the lower. I received a test-card scribed 'Danmark Radio' at 0750 on July 7.

SSTV

In June, **John Scott's** patience earned him a couple of first-time slow-scan television pictures. One from Argentina (LU1BP) on 14.230MHz and the other from Strathclyde (GM0ODB), **Fig. 9**, on 144.500MHz. John often looks-in on a SSTV net around 3.730MHz during the early evening and has copied signals from England and Wales (G0AZX, GW0LAL & GW4WF), **Figs.10 & 11**. Other captions he logged around 14.230MHz came from Germany **Fig. 12** and Spain (EA3AZJ). John tells me that GM0ODB is using a DRAE slow-scan converter and that the outside of his own home in Glasgow is "turning into an antenna farm, hi!"

Antenna Maintenance

The summer is an ideal time to examine your antenna installation and replace any defective parts or renew and/or update the whole system. Even a simple antenna, like the u.h.f. Yagi in **Fig. 13**, could be below par because the wind has loosened the fixing bracket and put a directional beam like this slightly off target. In this case, even the weight of a large bird, **Fig. 13**, could make it droop or turn slightly. Smoke from the chimney may have corroded the driven element and connector block. Do remember that antennas are subject to all extremes, hot, cold, wind and rain. Plastics on the outer of the coaxial cable and the cover on the connector become very pliable with heat and very hard with bitter cold. Should these changes leave a gap, then the rain and smoke can get in. Wind can also loosen one or more directors or the reflector any of which will reduce the antennas performance. You can always take a preliminary look, from the ground, with a strong pair binoculars. Make sure you walk all around and that you don't miss any of the vulnerable points. Look for rust on chimney-lashing wires, 'J' bolts securing the lashings to the pole mounting bracket and the 'U' clamps holding the pole to the bracket. Mechanical failure of any of these components could bring the installation down in a high winds, especially if the pole is carrying a rotator and/or heavy arrays. Also check the clamps holding the antenna booms to the mast.

New Catalogue

All this came to mind when I saw the latest catalogue, with its 30 or so illustrated pages, from Aerial Techniques, 11 Kent Road, Parkstone, Poole, Dorset BH12 2EH. Sometimes, while browsing through such a catalogue, you may see an easier method of supporting or adjusting your existing antenna by referring to the illustrations of brackets, couplings and pole mounts. They list 8 types of antenna for Band I ranging from a dipole to beams, 13 for Band II, 4 for Band III and nearly 30 to suit all needs for the u.h.f. bands. In addition there are converters, diplexers, filters, distribution and head-amplifiers and a variety of sundries all aimed at improving that incoming signal. In fact a DXer can choose his complete station from Antenna to receiver from this catalogue and, if required, have the benefit of David Martin's expert advice. Why not give him a call on (0202) 738232 or send £1 for the catalogue.

info in orbit

Lawrence Harris
5 Burnham Park Road, Peverell, Plymouth, Devon PL3 5QB

Many of the scanners and receivers currently being sold can tune into the weather satellites. I have received many letters from *SWM* readers who have picked up one or other of the several that can be heard in the 137 to 138MHz band. Even the little antenna supplied with these receivers can often pick up these powerful transmissions, particularly when used outside. The WXSAT transmission power is about 5W but, of course, when they pass by high up, there is nothing in the way!

I recently took part in a city centre demonstration of sun spot projection, and used my battery-operated scanner together with a predictions list showing all of the WXSATS that would be passing over during the morning. Needless to say, there was much astonishment when I explained to visitors that the 'bleeping' sounds were weather satellites passing over the UK!

Recent activity

During late June, the Russian weather satellite METEOR 3-3, which had been operating on 137.40MHz (just like the OKEAN satellites used to), stopped transmitting. This leaves only two Russian WXSATS operating - METEORS 2-19 (on 137.85MHz) and 3-4 (on 137.30MHz). Of these two, only 3-4 operates during the night-time part of its orbit.

The Russian WXSATS can be very confusing for the beginner. In the past they have changed both frequencies and operating characteristics. However, the last couple of years have seen some continuity, with METEORS 2-19 or 2-20 always using 137.85MHz, and either METEOR 3-4 or 3-5 using 137.30MHz. METEOR 3-3 came on as a surprise, using 137.40MHz and no doubt we shall see it again.

NOAAS 9 and 11

The early days of July saw the two American WXSATs NOAAs 9 and 11 both remaining in operation despite some overlapping of their passes. Both use 137.62MHz but their orbits are separated in space such that NOAA 9 is passing during morning and evening times that are similar to NOAA 10 (which uses a different frequency). For a few weeks, both 9 and 11 can interfere when they are both above the horizon.

Usually when this happens NOAA 9 is switched off, following announcements on the TBUS transmissions (these are operating messages transmitted by RTTY, GOES schedules, BBS and probably other methods). Although the announcement was made about NOAA 9 going off, it remained on. This is why people monitoring these satellites might have heard (and seen) the resulting interference. I watched the passes coinciding on July 8 between 1642 and 1647UTC when the NOAA 11 picture of the western Atlantic gradually changed into a NOAA 9 picture of Europe!

Solar Eclipse

There was a total eclipse of the sun on June 30 and although my finances would not run to an ocean cruise of the south Atlantic, we all had a spectacular view of the moon's shadow travelling across the ocean during the day, using METEOSAT 4.

The eclipse was seen as a dark circular area moving from the west coast of South America eastwards across the ocean, and was visible in normal WEFAX images though I was able to use my Primary Data system to see the whole earth images every 30 minutes. All the clouds within the circle were dark and it looked very dramatic. I stored some images for later photography. The prints will be shown when available.

MAGION 3

If you operate a scanner for long periods, searching the WXSAT band (nominals 137 to 137.99MHz) then you must have picked up the strange tones of MAGION 3 which uses 137.85MHz - i.e., the same frequency as some METEORS. From time to time mine locks on to MAGION and the signal can be quite strong.

MAGION has an orbit of high eccentricity (so that its distance from the earth varies widely); its orbital period is about 121 minutes, and inclination about 82° which is similar to the Russian WXSATS and so some interference is inevitable. MAGION 3 also transmits on 137.15MHz. You may also hear the scientific satellite PROSPERO transmitting in the band, on 137.56MHz.

New METEOSAT Schedules

As has been mentioned in a previous month, METEOSAT 3 (the geostationary Atlantic Data Coverage satellite) currently positioned over longitude 50° is going to be drifted further westwards, probably at the end of the year. From its next position at longitude 75° west, it will have a clear view of the whole USA, rather than just the eastern coast. Unfortunately we will not then be able to monitor it. From August 1 it will have a new dissemination schedule of which I have obtained a copy originating from the BBS operated by EUMETSAT. There are significant changes to the various sequences of transmissions, both for WEFAX and the primary data pictures, and so I won't attempt to summarise them here. Anyone wishing to have a copy should write to EUMETSAT at Am Elfengrund 45, D-6100 Darmstadt-Eberstadt, Germany.

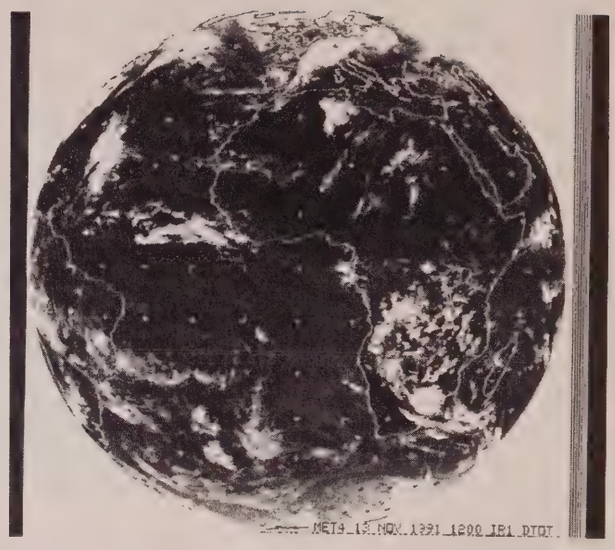


Fig. 1: METEOSAT DTOT from Pete Beardmore.

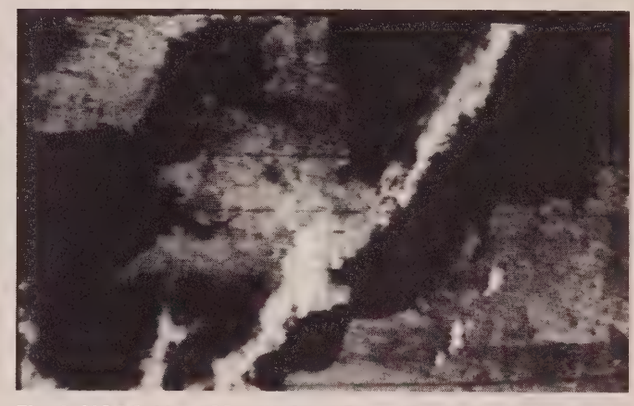


Fig. 2: NOAA 11 on May 15 from Roger Ray.

For those who are fairly new to the monitoring of METEOSAT signals, this weather satellite, originally part of the European Space Agency's satellite system, has been allocated for American use due to the long delays in launching a new GOES WXSAT. Last year it was drifted from longitude 0° (over Greenwich) to its current 50° position.

It can be received by any normal METEOSAT system but it only transmits on 1691.0MHz. If you are trying to 'hear' it for the first time, you must allow for the fact that, unlike METEOSAT 4, it only transmits at the scheduled times. In between pictures, it cannot be heard. This contrasts with METEOSAT 4 which always transmits a tone in between the pictures.

METEOSAT 4 is also going to operate a revised schedule, but on this occasion the changes are few. I had noticed that the LXI transmission (infra-red digital data originating from METEOSAT 3) has been followed by an unscheduled visible whole disk image, though not at full resolution. During the time between WEFAX pictures you will also hear the data transmissions involved with the Data Collection Platforms (DCP).

Drought

The monitoring of planet earth using the METEOSATs is not only a technical achievement for those who have perhaps designed and built their own systems, but the means to get an insight into the global situation that is not easily available elsewhere. During the last 18 or so months we have been able to see the eruptions of Mount Etna before they ever hit the headlines, monitor the immediate and long-term environmental effects of the Gulf War, and now there is another event taking place. There has been an absence of cloud over the southern countries of South Africa for weeks, if not months. The picture has remained unchanged. I do not have archived images to refer back to but I have been able to 'zoom in' to regions in Angola and Zambia to see what appear to be rivers drying up. Are we seeing climatic changes?

Letters

No shortage of interesting points raised by correspondents! **Bob Warriner** of Lancing sent me one of his PROsat2 images complete with a colour palette. It showed the area around the Nile and there was another image showing parts of Italy shrouded in fog. Both were from METEOR 3-4 taken during early May. Bob asks about a PDUS review! OK but give me a little time please - I've been marking 400 exam papers! One of my first PDUS images is shown in **Fig. 4**.

Roger Ray of Telford has also sent me some pictures from his PROsat2 system. He tells me that his Timestep Weather Systems PROscan receiver has proved resistant to the paging units.

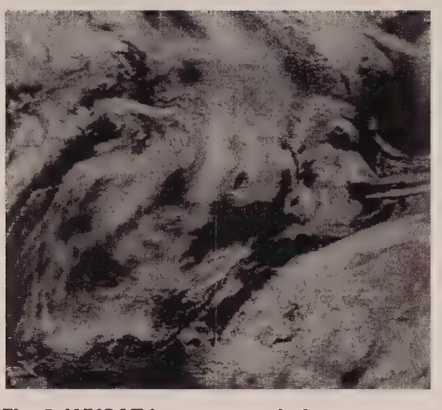


Fig. 3: WXSAT image recorded on a v.c.r. from Martin Liddament.

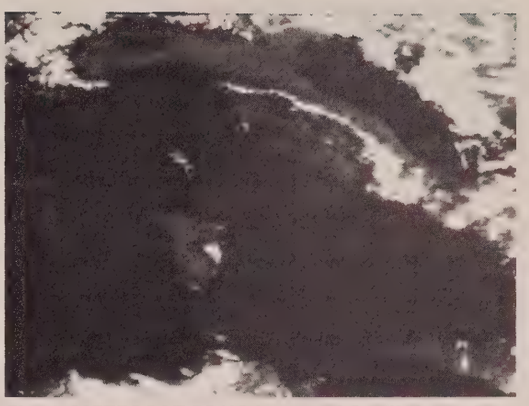


Fig. 4: METEOSAT PDUS image of Sardinia region.

Roger also agrees with Geoffrey Chance's suggestion of a 'readers list' for mutual aid - see 'contacts'.

Keith Elgin lives in Northern Ireland and has been able to monitor the shuttle re-broadcasts from WA3NAN from the Goddard Space Flight Centre. I have previously published these frequencies in this column, though I must admit I find it very difficult to receive them, although several writers have confirmed their good reception - maybe my h.f. antenna needs checking. Keith actually saw the space shuttle launch of Endeavour at 2345UTC on May 7 from home, and describes how he watched it rise in the west for a few minutes until low cloud moved in.

Ben Ramsden of Halesowen describes himself as a beginner in the WXSAT field. He uses a crossed-dipole antenna feeding 11m of 50Ω cable into a Dartcom receiver and then into a second-hand YU3UMV framestore. This is similar to my first system, which, as Ben says, is one of the cheapest systems that can display reasonable pictures, if you don't already have a suitable computer. Ben asks whether the additional filters in his receiver, which were fitted to reduce paging interference, will cause picture degradation? These filters should have no effect on picture resolution because they are carefully selected to maintain the proper bandwidth characteristics for weather satellites. They are added to restrict the passage of non-a.p.t. frequency components, and they can have a marked beneficial effect in reducing this unwanted interference. Mine were fitted by Dartcom shortly after the paging transmitters were first activated and eliminated most of the corruption.

How Long Each Pass?

Ben asks about the total time that one location can expect to receive a high NOAA or METEOR pass. The maximum duration of any satellite pass depends mostly on two factors, first the height of the satellite, and secondly the observer's own horizon. NOAA WXSATs all orbit between 800 and 860km up; the METEOR class two satellites are about 950km up; the class three satellites are the highest - at 1200km and the OKEAN oceanographic satellites are the lowest at about 640km.

Consequentially the OKEAN satellites are the quickest movers and their passes (on those strangely rare occasions when they are transmitting for a whole pass) last about 12 minutes. The NOAAS and the class 2 METEORS last for about 15 minutes and the high orbiting class three METEORS can clock up to 20 minutes! Obviously these higher satellites also let us see more of the earth. A good METEOR 3-4 pass can be monitored almost up to the north pole!

The second factor - the observer's horizon - may limit the amount of the complete pass that is actually visible. I have houses on my eastern side that stop me seeing to the east of Cyprus. I have received pictures from correspondents such as Brian Dudman who can see right over to Saudi Arabia. However, my western horizon is superb and so METEOR 3-4 reveals the USA right down to Boston! I have heard decodable signals down to about one degree below the horizon. Ben has a 9-story building due south, which stops him seeing North Africa. This is a physical obstruction which cannot be overcome. Fitting a pre-amp won't help, and would probably make matters worse by amplifying unwanted signals which could interfere with the a.p.t. (WXSAT) signals.

James Booth wonders whether any readers have had success using the Maplin system with the Amstrad 464 computer? A letter from Bob Anderson told me that he bought a Griffin framestore some time ago (they date back to about 1986 or so) but is now hoping to use his Amiga to decode WXSAT a.p.t.

Dish Size

Bob asks about the sizes of dishes for use with METEOSAT. The most commonly used size is about 1m diameter and should be used with a good quality pre-amp or a suitable down-converter, some of which have built-in pre-amps.

Obviously if you use a bigger dish then you will receive a more powerful signal. I use a standard RIG (Remote Imaging Group) 1m dish for most WEFAX use, and a 1.8m unmounted dish for PDUS (METEOSAT Primary Data) use. Sometimes I collect WEFAX data from GOES using the large dish and the picture quality is then very good.

James Burns writes from Australia where he has sent me some notes from a local electronics magazine which describes a 'Listening Post WESAT Station'. This unit is priced at $A99 (£40) including software and James tells me that it is excellent.

Atari Pictures

Reader **Ron Scrimgeour** tells me that there is a program called 'Pictures from Space' by Leslie Kaye on Shareware disk GD942 for the Atari ST computer costing £2.75 from Goodmans Enterprises, 16 Conrad close, Meir Hay Estate, Longton, Stoke-on-Trent ST3 1SW.

Contacts

This column is written mainly for the weather satellite enthusiast, including both beginners and those with many years of experience. An increasing number of people are asking to be put into contact with others mentioned in the column who have solved various types of problems. This feedback can be very helpful and I so always keep letters for a period of about one year, to allow me to refer back to the addresses. Could I ask correspondents to indicate on letters whether they are happy to have their addresses given to others on request?

PC-GOES

Martin Liddament of Reading has sent me some pictures taken using his PC-GOES system which I recently reviewed. He has worked out an innovative method of producing good pictures from recordings. In my review, I mentioned that PC-GOES cannot really cope with tape recordings of a.p.t. data. Martin has recorded signals on the audio track of his domestic video recorder and on playing them back he says that results were indistinguishable from live data! Martin sent me four pictures to prove this, of which one is shown in **Fig. 3**. He now uses his v.c.r. for the programmed recording of a.p.t. signals. Martin noted my comment about the price of PC-GOES (I said that I thought that at £250 it was a little high). Martin points out that Comar Electronics advertise the same system for about £200. He is correct, as I was! The information that I quoted was from another distributor who told me of the price rise last December.

Predictions

The summer holidays will see many hobbyists spending time on satellite monitoring and so in the table below are another set of predictions for those who have a suitable receiver to tune into the WXSATS but no predictions program. The table lists AOS (acquisition of signal) time UTC, the LOS (loss of signal), the maximum elevation and whether east or west, and finally whether travelling north-bound (NB) or south.

Frequencies

NOAAS 9 and 11 a.p.t. on 137.62MHz; NOAAS 10 and 12 on 137.50MHz; METEOR 2-19 or 2-20 on 137.85MHz and METEOR 3-4 or 3-5 on 137.30MHz.

Sunday August 30

Satellite	AOS	LOS	Maxel	Direction
NOAA 12	0816	0831	76E	SB
NOAA 9	0902	0917	48W	SB
MET 2-20	0937	0954	74W	SB
MET 2-19	1305	1322	59E	SB
MET 3-3	1326	1346	80E	SB
NOAA 11	1424	1440	67E	NB
NOAA 12	1804	1818	35E	NB
NOAA 9	1853	1909	81E	NB
NOAA 12	1943	1958	42W	NB

Please remember that I cannot be sure whether every satellite listed will be operating, and that the times may be a few minutes out.

Abbreviations

AOS	Acquisition of signal
a.p.t.	Automatic picture transmission
ESA	European Space Agency
EUMETSAT	European Organisation for Meteorological Satellites
GOES	Geostationary Operational Environmental Satellite
VGA	Video Graphics Array
LOS	Loss of signal
h.r.p.t.	High resolution picture transmission
BBS	Bulletin board service
PC	Personal computer
PDUS	Primary Data User Station

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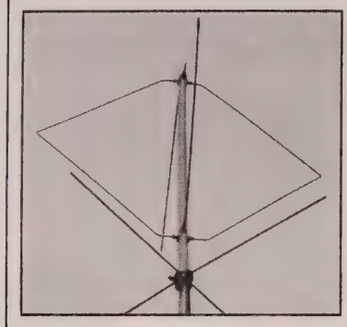
RF SYSTEMS PRODUCTS



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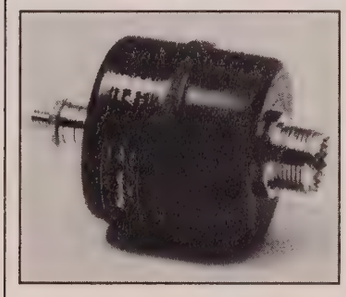

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AERIALS AND ALL THAT

No subject in the world of listening is surrounded by more confusion, myth, and general nonsense than that concerning aerials, and I see no reason why I shouldn't add my two penn'orth. The best all purpose aerial is still a random length of wire erected in a straight line and as high as your house will allow. A length of 10 to 15 metres is ideal, although you can make this longer if you do a lot of listening to medium wave. At the end of the wire I recommend using the RF Systems Long Wire Balun – not just because we sell them, but because they WORK MIRACLES for low noise reception.
I am sad to hear that the good old G5RV is rearing its head in the world of short wave listening, and I can't think of a more UNsuitable aerial for the general listener. As a radio amateur myself, and as an ex-colleague of Louis Varney from my days with Marconi (no-not Marconi himself), I like the G5RV, but you will be better off with a simple end fed wire – and the wire end on your house, not 50 feet out in the middle of the garden on open wire feeders.
Next month I will tell you of some research we have been doing into the fallacy of aerial tuners for the short wave listener, and will answer the question "Does the listener need, or benefit from an aerial tuner?"

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LONDON (MIDDX): 223/225 Field End Road, Eastcote Tel: 081-429 3256 **NEWCASTLE:** Newcastle International Airport Tel: 0661 860418

decode

Mike Richards G4WNC
200 Christchurch Road, Ringwood, Hants BH24 3AS.

Ian Pleasance of Highams Park in London is an experienced computer programmer and writes asking for help. He wants to write his own decoding software, but doesn't know where to obtain all the technical details. The answer is to be found in the Klingenfuss Radioteletype Code Manual (*SWM* Book Service stocks it). This excellent book gives hard to find technical details of most of the modes found on the h.f. bands. However, you do need a certain amount of basic comms knowledge to get the best from the book.

Mark Cox of Wigan has spotted a station that neither he nor I have been able to identify. The station operates on 388.2kHz between 2347 and 0003UTC and sends MCR repeatedly. Can anyone help?

The column sure seems to have an international appeal as I've just received a letter from **Jim Burns** in Australia. Jim's a keen listener and currently runs an IBM PC based system using the 286 processor with a clock rate of 12MHz. The receiver is a Yaesu FRG-8800 which feeds a Listening Post II decoder. This decoder is a new one to me and looks to be very good value at $A80 for the kit. This converts to about £35.00 sterling. The decoder not only handles FAX at 120 and 60 r.p.m. but decodes c.w. and RTTY. If anyone would like more details the suppliers are: High Tech Tasmania, 39 Pillinger Drive, Fern Tree, TAS 7054, Australia.

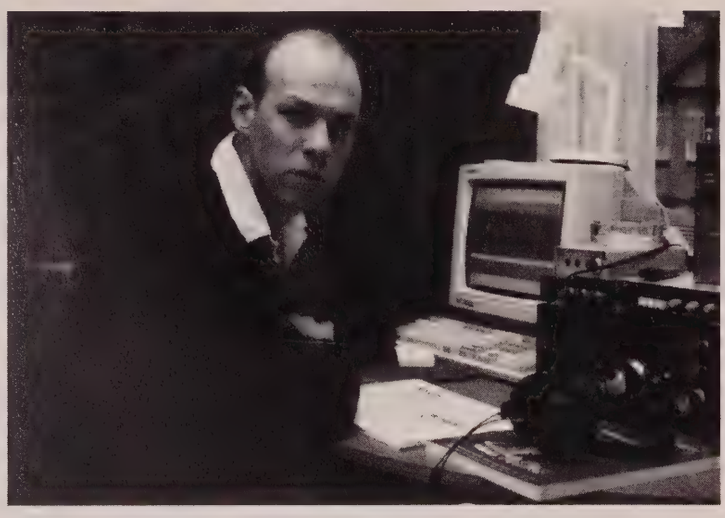
Readers Queries

Short Wave Magazine and consequently 'Decode' have increased in popularity to the point where I'm having great difficulty supplying individual answers to the wide range of question asked by readers. To help overcome this problem I've started to put together a set of fact sheets to cover most of the more common points. I will also be attempting to answer questions via the column. Just one more favour, if you're asking for help could you put the question near the top of the letter. Although it's useful to have a full case history, it's easier if I know the question before I read the history. I don't want to stop answering queries individually, but time is short as I don't write as my full-time job, so your help will be appreciated.

With regard to requests for frequency lists, Elaine will be helping me with these and we are aiming to return these within a few days.

Starting FAX

I seem to receive a regular flow of pleas for help from readers who are just starting out with FAX reception. One such letter arrived recently from **Ian Harper** of Bury St. Edmunds. Hopefully, running through his questions should answer the queries from a number of people and help a few who are just starting out.



Paul Charlton at his utility listening station.

Ian's first question concerns tuning systems and how to use them. There are two types of tuning system in common use, the bargraph and oscilloscope. The bargraph system usually takes the form of a horizontal display either on a computer screen or a row of l.e.d.s. The technique with this system is to tune the FAX signal so that it's evenly balanced around the centre point. The easiest way to do this is while the station is transmitting a picture. If you try to tune in between pictures you'll only get a single l.e.d. lit. With an oscilloscope tuning system you are generally presented with a display comprising three horizontal lines. One in the centre of the screen and the other two equal-spaced about the centre. The two outside lines represent pure black and white respectively. As with the bargraph system, the easiest way to tune is while a picture is being sent. The receiver tuning should be adjusted so that the signal is equally spaced about the centre line. For best results with charts, the signal should reach or overlap the two outer lines.

FAX Reception

Once you've mastered the basic tuning techniques, you can use the receiver tuning like a brilliance control to refine received picture. It's important to remember that reliable FAX reception demands excellent frequency stability from the receiver. It's not uncommon for listeners to find they have to adjust the tuning during reception. This is especially true with the cheaper models.

Now let's move on to the main settings for FAX reception. There are two key parameters that must be set correctly - r.p.m. and IOC. The r.p.m. or lines per minute has to align with the drum speed of the transmitting station. By far the most common setting is 120, though 60 and 90 are in use on the h.f. bands. The IOC or Index Of Cooperation is a complex parameter that has to align with the relative speed that the transmitters sensor moves across the image. Fortunately, there are only a couple of common settings in use. These are 576 for most weather charts and 288 for press photos. To help you get started, try tuning to 13.595MHz or 4.782MHz with settings of 120 r.p.m. and 576 IOC. Once you are accurately tuned-in you should receive weather FAX images. Don't worry if the picture looks as though the ink has been smudged, this is due to multipath propagation. The way to overcome this is to try receiving the same station on another frequency. This is where a good frequency list can prove to be invaluable.

Simple Guidance

Once you've mastered the basics of manual tuning the next step is to try the auto reception modes. Most of the current FAX systems include this very useful feature. The system works by analysing the start tone and phasing sequences that are sent at the beginning of each picture. The start tone is used to convey the IOC, whilst the syncronising sequence gives the drum speed. One of the main advantages of using the auto reception modes is that the received picture is always properly aligned. If you use the manual mode you will often find that the edge of the picture is anywhere but at the edge. This is not a serious problem as most packages include some manipulation tools to tidy-up the received picture.

I hope that provides some simple guidance for newcomers to this fascinating aspect of the hobby.

Swiss Radio International

I'm mentioning this station again by way of a reminder. Swiss Radio International or SRI as it's more commonly known is one of the few broadcast stations to use RTTY. The original service started towards the end of 1991 with news broadcasts in Swiss national languages. So as to make the service receivable by as many people as possible the transmission format is standard 50 baud RTTY. The transmitter power is 20kW so the signal is generally very good.

The service has developed since those early transmissions and they now regularly broadcast programmes in English French and German. The latest schedule I have was sent in by **Graham Burnett** of Berwick-on-Tweed as follows:

10.515MHz, 2000-2100UTC towards Asia
10.515MHz, 0030-0130UTC towards South America
10.515MHz, 0200-0300UTC towards North America
15.835MHz, 1700-1800UTC towards Australia
17.53MHz, 1830-1930UTC towards Africa

If you'd like to QSL with the station you will need to send a sample printout to Swiss Radio International, PR and Marketing, CH-3000 Bern, Switzerland.

Photo Call

Yes it's time for another mug shot! This month the honour goes to **Paul Charlton** of Ilford. Paul's a regular contributor and something of an old hand at utility listening. His current set-up comprises a Yaesu FRG-7700 h.f. receiver that feeds a Multyterm decoder via a Datong audio filter. This compact system gives him good quality access to RTTY, c.w., FAX and ARQ modes. Paul asks about the legal implications of showing FAX print-outs to his colleagues. The answer depends on what stations have been received. If it's weather charts there shouldn't be a problem as it's perfectly legal to receive weather information for amateur use. You must ensure that you don't make any form of commercial use of the charts. When it comes to any other transmission types, I wouldn't advise making the information public. This is particularly true of any personal communications you may come across, such as ship to shore ARQ transmissions.

If you'd like to be featured in my photo call section, just send me as good a photo as you can. It would be helpful if you could also send details of your station and listening interests.

Bracknell RTTY Schedules

With the tremendous interest in weather data from this station, I though it was about time I published a schedule. Getting hold of a schedule, on the other hand, is not that easy as they aren't transmitted like FAX schedules. The solution came from **Bill Clark** of Aspatria. He's sent me a summary of the latest schedule - the full version runs to eight pages!

Let's start with a run down on the frequencies in current use.

4.489MHz (GFL26), 24hr
6.835MHz (GFL22), 1800-0600UTC
10.5513MHz (GFL23), 24hr
14.356MHz (GFL24), 24hr
18.23MHz (GFL25), 0600-1800UTC

The transmission mode from each of these stations is 50 baud with a shift of 400Hz. Incidentally the transmitter power is 10kW so the signal is generally very strong in the UK.

Let's now look at the transmission contents. The broadcasts are mainly divided into three hour periods to align with the standard three hourly observation times. The transmission periods start at 0000 and run right through the 24hr period. Probably the best example to start with is the 1200-1500 time slot as this usually has the most observations. The transmission runs as follows:

1203-1300UTC Surface Observations

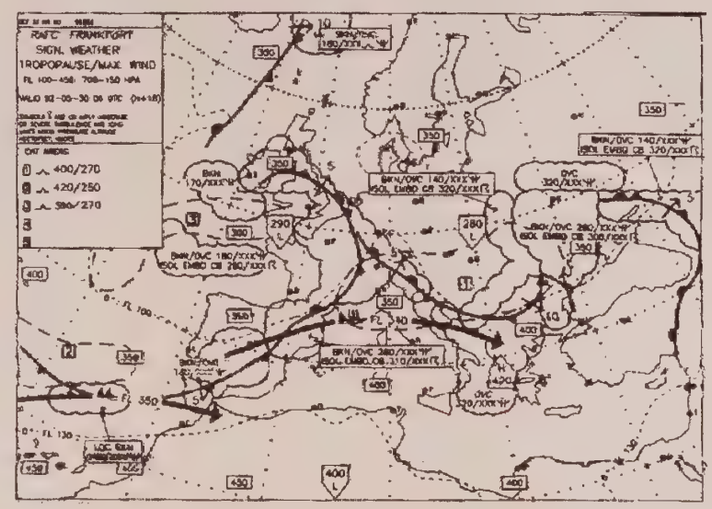
Land station 1203 Eire Bulletin 1 (SMIE01)
Land station 1208 UK Bulletin 1 and 2 (SMUK01 and 22)
Land station 1220 N and W Europe 1 (SMEU01)
Ships 1240 North Sea, North Atlantic and Mediterranean (SMVF01)
Land station 1250 N and W Europe 2 (SMEU22)

1300-1400UTC Upper Air Observations

Land station UK parts 1 and 2 (USUK01 and UKUK01)
Land station N and W Europe (USEU01 and UKEU01)
Ship WX ship Cumulus (US/UKVF01)
Ship WX ship Polar Front (US/UKWF01)
1324 Retards USUK01 and UKUK01
Surface reports for 1200
Land station N and W Europe continued (SMEU22)
Upper air reports
Land station N and W Europe continued (USEU01 and UKEU01)

1400-1508UTC Surface Observations

Land station Surface obs. N and W Europe continued (SMEU22)
Land station upper air Western Europe (USEU31)
Various after 1427 N. America and C.I.S. (SMNA and SMRS42)



ICS FAX II picture from Mark Pepper.

Now let's take a look at a typical Bracknell transmission header to demonstrate how you can work-out the type of bulletin for yourself.

ZCZC
SMUK01 EGRR 011200
AAXX 01124

ZCZC = Standard signal indicating the start of a message.
SM = Surface observation for a main hour.
UK01 = United Kingdom Bulletin 1 (see later section for details)
EGRR = Location indicator showing where the bulletin was compiled (EGRR is Bracknell).
011200 = 1st day of the month at 1200UTC.
AAXX = SYNOPTIC surface observation from a land station.
01124 = Date/time/synoptic ob.

Whilst it's not possible for me to include a full list of bulletin types, here's a breakdown of some of the more common identifiers.

IE01 - Eire bulletin 1, 2 stations in Eire.
IE22 - Eire bulletin 2, 6 stations in Eire.
IE23 - Eire bulletin 3, 6 stations in Eire.
UK01 - UK bulletin 1, 35 UK stations.
UK22 - UK bulletin 2, 12 UK stations.
USUK - Part 1 of upper air messages.
UKUK - Part 2 of upper air messages.
EU01 - NW Europe, 121 stations in Norway, Sweden, Finland, Iceland, Denmark, Holland, Belgium, Switzerland, France, Spain, Portugal, Germany, Poland and Canary Islands.
EU02 - Compilation of 54 stations: Austria, Czechoslovakia, Hungary, Yugoslavia, Bulgaria, Italy, Greece, Cyprus and Israel.
EU22 - Compilation of 194 European stations as in EU01.
NA22 - Compilation of 16 stations from Eastern seaboards of Canada, the US and Bermuda.
RS42 - A compilation of 30 stations from C.I.S.
SFUK30 - Location of atmospherics, Europe and N. Atlantic broadcast hourly on the hour or just after.
SSNT11 - Drifting buoy observations
UANT01 - Aircraft reports broadcast hourly just after the hour for previous hours report from aircraft over the N. Atlantic.
TBUS - Satellite (NOAA) location information from Washington broadcast around 2040-2105 and continued or repeated at 2240.

Now let's see some of the more common location identifiers associated with main Meteorological centres.

EGRR - Bracknell
EIDB - Dublin
ENMI - Oslo
EDZW - Offenbach, Germany

Next I'd better list some common observation type identifiers.

AAXX = Synoptic report from a land station.
BBXX = Synoptic report from a sea station.
TTAA = Upper level temperature, humidity and wind report from a land station.
TTBB = Part B of TTAA.
TTCC = Part C of TTAA

If all this has further whetted your appetite here's a few suggestions as the where you can find more detail on the various code types.

From the Klingenfuss stable the *Air and Meteo Code Manual* lists details of the reporting codes and location identifiers. However if you want to cover the TBUS system you will also need to buy his *Guide to Facsimile Stations*. An alternative source of information is the *Admiralty List of Radio Signals. Volume 3* contains the codes for SYNOPTIC and SHIP observations, while Vol. 4 has the station names and identifiers.

My thanks to **Bill Clark** for taking the trouble to put this useful report together.

Frequency List

Now for this month's frequency list. I've used the normal format of: Frequency, mode, speed, shift, callsign, time and notes. The contributors to this month's list were, **Jan Nieuwenhuis, Paul Charlton, Day Watson** and **Robert Hall**. If you would like my complete frequency list then just send three first or second class stamps to the address and the head of the column.

134.2kHz, FAX, 120, 576, DCF54, 0702, Offenbach Meteosat
3.236MHz, FAX, 60, 576, -, 0126, USSR
3.587MHz, ARQ, 100, 170, -, 0136, UNID
3.731MHz, FAX, 120, 576, -, 0143, UNID
4.5127MHz, RTTY, 50, 352, OEJD, 0403, Jeddah Met
4.757MHz, FAX, 120, 576, -, 0046, UNID
4.788MHz, RTTY, 50, 400, 6VU23, 0438, Dakar Met?
7.52MHz, RTTY, 75, 400, BZP57, 1930, Beijing press
7.598MHz, FAX, 120, 576, AJE, 1945, USAF/AWS Croughton
7.64MHz, FAX, 90, 576, RST76, 1958, Minsk Meteo
7.75MHz, FAX, 60, 576, RAW78, 2030, Moscow Met
8.09MHz, CW, -, -, NAM, 0811, USN Norfolk
8.165MHz, RTTY, 50, -, 5YD, 1517, Nairobi Air
8.471MHz, CW, -, -, UXN, 1357, Arkhangelsk radio
8.4871MHz, CW, -, -, IDQ, 1406, IN Rome
8.551MHz, CW, -, -, CTP, 1439, NATO Lisbon
9.1949MHz, ARQ-E3, 48, 400, 5ST, 0544, Asecna, Antananarivo
9.443MHz, RTTY, 75, 170, -, 1850, UNID
12.7185MHz, CW, -, -, NMN, 2301, USCG Portsmouth
12.72575, CW 5AF, 1500, Tripoli Air
18.4167MHz, RTTY, 50, 400, -, 1312, MFA Jakarta
19.303MHz, RTTY, 100, -, -, 1813, Turkish news
20.132MHz, RTTY, 75, 400, -, 1515, Yugoslav press
20.7544MHz, ARQ, 100, 170, HBC88, 1055, ICRC Geneva
22.955MHz, RTTY, 50, 400, ISX22, 1541, Rome press

long medium & short

Brian Oddy G3FEX, Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS

By international agreement the 120m (2.300-2.495MHz), 90m (3.200-3.400MHz) and 60m (4.750-5.060MHz) bands are allocated for broadcasting use only in designated tropical areas. The 75m (3.900-4.000MHz) band is for regional broadcasting only in Europe and Asia. The LM&S tropical band charts clearly show that a number of international broadcasters are ignoring these agreements.

Despite pressure from some countries, it was decided at the World Administrative Radio Conference (WARC) held in Torremolinos in February/March '92, that the tropical bands would not be opened for international broadcasting. It will be interesting to see if the broadcasters abide by this decision.

Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless stated, all logs compiled during the four week period ending June 30.

The unexpected reception of transatlantic l.w. signals in Canada during May, encouraged **Alan Roberts** (Quebec) to continue his checks during June. The most extraordinary l.w. reception he has ever encountered occurred at 0300UTC on June 2, when signals from R.Monte Carlo via Roumoules on 216kHz were heard quite clearly. He says, "I listened to their 5am news and heard warnings of violent storms in the Pyrenees, Massif Central and the Alps. It was nice to hear another country's commercial jingles. RMC watches were offered as prizes in a phone-in competition". The opening continued for half an hour. For about 5 minutes their signal was sufficiently strong to enable Alan to receive it on a portable using the built-in ferrite rod antenna! He checked all of the European l.w. channels, but no other signals could be heard.

The sky wave signals from Al Karanah, Jordan on 207 (600kW) were received after dark by **David Hertl** in Lenesice, Czechoslovakia, rated SINPO 33333. He also heard the 2000kW signals from Nardor, Morocco on 171, rated 32222.

Whilst in N.Majorca, **Jim Cash** used a pocket sized Sony ICF-SW1 portable to check the band in the evenings. The internal ferrite rod antenna proved to be rather inadequate, but nevertheless he compiled an interesting list for the chart. At 2128 he picked up BBC R4 on 198, which is shared by Burghead (50kW), Droitwich (500kW) and Westerglen (50kW) - the combined signal rated 25222. Using headphones, R4 was audible with considerable hiss. On 153, which is shared by DLF Donebach, Germany (500/250kW) and Bechar, Algeria (1000kW), he was surprised to find the German diction more pronounced than the Algerian music.

Medium Wave Reports

In Grimsby, **Jim Willett** continued his search for transatlantic m.w. signals during the early hours of the morning. At 0110 he picked up Gronlands R. via Qeqertarsuaq on 650, their 5kW signal rated SIO222. Later, WINS in New York, NY on 1010 became audible and rated SIO222 at 0200, but signals from others in the area were weak and could not be identified. Although the Caribbean Beacon, Anguilla on 1610 was peaking SIO222 at 0235, signals from S.America were noticeably absent. Two stations in St.John's, NF were logged, VOCM on 590, SIO222 at 0250 and CJYQ on 930, which peaked SIO322. At 0315 Jim heard CKOC in Hamilton, ON, their signal on 1150 was SIO222.

Down in Worthing, **Ron Damp** has also been burning the midnight oil. He picked up CJYQ on 930 at 0315 and rated them 33333, but much to his surprise they faded out at 0330.

Good reception of the sky wave signals from some stations in N.Africa and S.Europe was noted after dark by **George Millmore** in Wootton, IOW. His extensive list includes several stations not heard before. He rated Layonne, Morocco on 711 (600kW) as SIO434; Messina, Italy 1143 (6kW) SIO433; Valladolid, Spain 1539 (5kW) SIO222; and Vitoria, Spain 1602 (10kW) SIO222.

Medium Wave Chart

Freq kHz	Station	Country	Power kW	Listener
520	Hof-Saale	Germany	0.2	G*
531	Ain Beida	Algeria	600	F*,H*
531	Leipzig	Germany	100	B,G*,J*
531	Oviedo	Spain	10	G*,H
540	BRT-2 Wavre	Belgium	150/50	F*,G*,H,J,N
540	Solt	Hungary	2000	G*
540	Sidi Bennour	Morocco	600	F*,H*
549	Les Trembles	Algeria	600	F*,H*
549	DLF Bayreuth	Germany	200	A,F*,G*,H*,J,N
558	Rostock	Germany	20	G*
558	Valencia	Spain	20	E*,G*
567	Berlin	Germany	100	G*
567	RTE-1 Tullamore	Ireland (S)	500	B,H,J,N
576	Vidin	Bulgaria	100	G*
576	Stuttgart	Germany	500	G*,H*,J*
585	FIP Paris	France	8	G*,H,N
585	RNE-1 Madrid	Spain	200	H*,J*,P*
585	Gafsa	Tunisia	350	H*
594	Frankfurt	Germany	1000/400	G*,H*,J*
594	Oujda-1	Morocco	100	H*
594	Muge	Portugal	100	G*,H*
603	Sevilla	Spain	20	H*
603	Sousse	Tunisia	10	E*
603	BBC Newcastle	UK	2	G*
612	RTE-2 Athlone	Ireland (S)	100	B,F*,J,P*
612	Lerida	Spain	10	H*
621	RTBF-1 Wavre	Belgium	80	G*,H*,J*,N
621	Orava	Czechoslovakia	14	E
621	Barcelona	Spain	10	H*
630	Vigra	Norway	100	G*
630	Tunis-Djedeida	Tunisia	600	E*
639	La Coruna	Spain	100	F*,G*,H*,J
648	Palma d.Mallorca	Spain	10	G*
648	BBC Orfordness	UK	500	A,C*,F,G*,H,J,N
657	Burg	Germany	250	G*
657	RCE-2 Madrid	Spain	20	G*,H*
657	BBC- Wrexham	UK	2	B*,G*,J
666	Bodenseesender	Germany	300/180	G*,J*
666	Lisboa	Portugal	135	H*
666	Barcelona	Spain	20	E*
666	R.Vilnius	Lithuania	500	G*
675	Hilversum-3 Lopic	Holland	120	A,F*,G*,H*,N,P*
684	RNE-1 Sevilla	Spain	250	B*,G*,H*
684	Beograd	Yugoslavia	2000	H*
693	Berlin	Germany	250	G*
693	BBC-R5 Droitwich	UK	150	J,M*,N,O
702	Aachen/Flensburg	Germany	5	G*,H*
702	Monte Carlo	Monaco	300	G*
702	Zamora	Spain	5	H*
711	Rennes 1	France	300	H*,N
711	Heidelberg	Germany	5	G*
711	Laayoune	Morocco	600	H*
711	COPE Murcia	Spain	5	H*
720	Langenberg	Germany	200	H*
720	Norte	Portugal	100	G*,H*
720	BBC-R4 London	UK	0.5	B,H*,M*
729	RTE-1 Cork	Ireland (S)	10	G*,H,J
729	Oviedo	Spain	50	G*,H*
738	Paris	France	4	H
738	Poznan	Poland	300	H*
738	RNE-1 Barcelona	Spain	250	G*,H*
747	Hilversum-2 Flevo	Holland	400	A*,B,F*,G*,H*,J N,P*
747	R.Cadena, Cadiz	Spain	10	G*
756	Brunswick	Germany	800/200	G*,H*
756	BBC-R4 Redruth	UK	2	H
765	Sottens	Switzerland	500	G*,H*,J
774	BBC-R4 Enniskillen	Ireland (N)	1	G*
774	RNE-1 S.Sebastian	Spain	60	G*,H*
783	Burg	Germany	1000	G*,H*,J*
792	Prague	Czechoslovakia	60	E
792	Limoges	France	300	G*
792	Sevilla	Spain	20	G*,H*
801	Munchen-Ismaning	Germany	300	B*,G*
801	Burgos	Spain	10	G*
810	SER Madrid	Spain	20	G*
810	BBC-Westerglen	UK	100	A*,B,G*,H*,J,M,P*
819	Toulouse	France	50	G*
819	San Sebastian	Spain	5	H*
828	SER Barcelona	Spain	20	H*
837	Nancy	France	200	G*
837	R.Popular, Sevilla	Spain	10	G*
846	Rome	Italy	540	G*,H*,J
855	Murcia	Spain	125	G*,H*
864	Paris	France	300	A*,G*,H*,J,N
864	RNE-1	Spain	10	G*
873	AFN via Frankfurt	Germany	150	B*,F*,G*,J
873	Zaragoza	Spain	20	H*
873	R.Ulster	UK	1	G*
882	COPE Malaga	Spain	5	G*
882	BBC-Washford	UK	100	A,F,G*,H*,J,N
891	Algiers	Algeria	600/300	E*,G*,H*,J*
891	Hulsberg	Holland	20	G*,H*
900	Pilsen	Czechoslovakia	40	G*
900	Milan	Italy	600	G*,H*
909	Korce	Albania	15	E*
909	BBC-Brookmans Pk	UK	140	J
909	BBC- Moorside Ed	UK	200	A,E
918	R.Intercont. Madrid	Spain	20	G*
927	BRT-1 Wolvertem	Belgium	300	A,G*,H*,J,N
936	Bremen	Germany	100	G*,H*,J*
936	SER Lerida	Spain	2	G*
936	Lvov	USSR	500	E*
945	Toulouse	France	300	G*,H*
954	RCE Madrid	Spain	20	G*,H*
963	Pori	Finland	600	F*,G*,H*,I*,J
963	Celje	Yugoslavia	2	E*
972	Hamburg	Germany	300	G*,H*,J*,M*
972	RNE-1 Cordoba	Spain	5	E*
981	Alger	Algeria	600/300	F*,H*
990	Berlin	Germany	300	B,E
990	SER R.Bilbao	Spain	10	G*
999	R.Popular, Madrid	Spain	20	G*
1008	Hilversum-5 Flevo	Holland	400	A,G*,N
1017	Rheinsender	Germany	600	G*,H*
1017	Istanbul	Turkey	1200	E*
1035	Prog.3 Lisbon	Portugal	120	G*
1044	Dresden	Germany	250	E,G*
1044	Thessaloniki	Greece	150	E*
1044	Sebaa-Aioun	Morocco	300	C*,H*
1044	San Sebastian	Spain	10	G*,H*
1053	COPE Zarogoza	Spain	10	G*
1053	BBC-R1 Droitwich	Uk	150	J,N
1053	Tetuan	Morocco	600	C*
1062	Kalundborg	Denmark	250	E*,G*,H*
1071	Brest	France	20	G*,H
1071	Lille	France	40	N
1080	Katowice	Poland	1500	G*,H*
1080	SER-Granada	Spain	5	E*
1089	BBC-Brookmans Pk	UK	150	J
1098	Nitra	Czechoslovakia	1500	H*
1098	RNE-5	Spain	10	G*
1107	AFN via Munich	Germany	40	E,F*,G*,H*
1107	RNE-5 Barcelona	Spain	20	F*,G*
1107	Novi Sad	Yugoslavia	150	E*
1116	SER-Pontevedra	Spain	2	G*
1125	La Louviere	Belgium	20	G*,H*,N
1125	Ahwaz	Iran	10	E*
1125	RNE 5	Spain	10	H*
1134	Valencia	Spain	10	H*
1134	Zadar	Yugoslavia	1200	G*,H*,J*
1143	AFN via Stuttgart	Germany	10	B*,F*,G*,J
1143	Messina	Italy	6	E*,H*
1143	Kaliningrad	Russia	150	G*
1152	RNE-5	Spain	10	G*
1161	Strasbourg (F.Int)	France	200	G*
1179	Santiago	Spain	10	G*
1179	Solvesborg	Sweden	600	G*,H*,I*,M*,P*
1188	Kuurne	Belgium	5	G*,H*,N
1197	VOA via Munich	Germany	300	G*
1206	Wroclaw	Poland	200	G*,H*
1215	COPE Castellon	Spain	2	G*
1224	Vidin	Bulgaria	500	E*,G*
1233	Melnik	Czechoslovakia	400	G*
1242	Marseille	France	150	J
1251	Tripoli	Libya	500	E*
1251	Huisberg	Netherlands	10	G*
1260	Valencia	Spain	20	F*,G*,H*
1269	Neuminster	Germany	600	B,G*,H*,J
1269	COPE Reus	Spain	2	E*
1278	Strasbourg	France	300	G*
1278	RTE-2 Dublin/Cork	Ireland (S)	10	G*,H*,J
1287	Litomysl/Liblice	Czechoslovakia	300/200	B,H*
1296	San Sebastian	Spain	5	G*
1296	BBC Orfordness	UK	500	G*,H*
1305	Rzeszow	Poland	100	G*
1314	Kvitsoy	Norway	1200	A,B,F*,G*,H*,J
1323	R.Moscow v Leipzig	Germany	150	G*
1332	Rome	Italy	300	G*,H*
1341	BBC-Lisnagarvey	Ireland (N)	100	A*,B*,F,H*
1350	Nancy/Nice	France	100	B,G*,H*
1359	Berlin	Germany	250/100	A*,B,G*
1368	Manx R., Foxdale	IOM	20	B,D*,G,L,M
1377	Lille	France	300	B,G*,H*,N
1386	Kaliningrad	Russia	500	A*,G*,H*
1395	R.Tirana v Lushnje	Albania	1000	G*,H*
1404	Brest	France	20	G*,H
1413	RCE Zaragoza	Spain	20	E*,G*,H*
1422	Heusweiler	Germany	1200/600	B,G*,H*,J*
1431	Dresden	Germany	250	G*
1440	RTL Marnach	Luxembourg	1200	E,G*,H*,K
1449	Berlin	Germany	5	G*
1467	TWR Monte Carlo	Monaco	1000/400	C*,F*,G*,H*,J,M*
1476	Wien-Bisamberg	Austria	600	G*,H*,J
1485	AFN	Germany	1	E*
1485	Saraievo	Yugoslavia	1	E*
1494	Clermont-Ferrand	France	20	F*,G*
1494	St.Petersburg	Russia	1000	F*,G*
1503	Stargard	Poland	300	E,G*,H*,J
1503	Beograd	Yugoslavia	10	E*
1512	BRT Wolvertem	Belgium	600	B*,E*,F*,G*,H*,J, M*,N
1512	Jeddah	Saudi Arabia	1000	E*
1521	Kosice	Czechoslovakia	600	G*,H*
1530	Vatican R., Rome	Italy	150/450	C*,F,G*,H*
1539	Mainflingen	Germany	700	E,G*,H*,J*
1539	Valladolid	Spain	5	H*
1548	R.Moscow	CIS	500	E*
1557	Nice	France	300	G*
1557	DW via Cyclops	Malta	600	E*
1566	Sarnen	Switzerland	300	B,G*
1566	Sfax	Tunisia	1200	C*
1575	Burg	Germany	250	E,G*,H*,J
1575	Genoa	Italy	50	E*,H
1584	Tachov	Czechoslovakia	2	E
1593	Langenberg	Germany	400/800	A*,B*,G*,H*,J*
1602	Vitoria	Spain	10	E*,H*
1611	Vatican R., Rome	Italy	5	E*

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Listeners:

A: Vera Brindley, Woodhall Spa.
B: Scott Caldwell, Warrington.
C: Jim Cash, N.Majorca.
D: Francis Hearne, Bristol.
E: David Hertl, Lenesice, Czechoslovakia.
F: Sheila Hughes, Morden.
G: Eddie McKeown, Newry.
H: George Millmore, Wootton IOW.
I: Ken Milne, Basingstoke.
J: Sid Morris, Rowley Regis.
K: Harry Richards, Barton-on-Humber.
L: John Sargeant, Bolton.
M: Tom Smyth, Co.Fermanagh
N: Phil Townsend, E.London.
O: Steven Verhaegen, Brussels.
P: Michael Williams, Redhill.

Local Radio Chart

Freq kHz	Station	ILR BBC	e.m.r.p (kW)	Listener
558	Spectrum R.	I	7.50	A,I,J,L,O
585	R.Solway	B	2.00	H,J,L
603	Invicta Snd(Coast)	I	0.10	I,J,K,M,O
630	R.Bedfordshire	B	0.20	A,I,J,L,M,O,P
630	R.Cornwall	B	2.00	A,I,L,O
657	R.Clwyd	B	2.00	A,G,H,I,J,L,M,O
657	R.Cornwall	B	0.50	A,I
666	DevonAir R.	I	0.34	A,E,G,H*,I,O
666	R.York	B	0.80	B,C,J*
729	BBC Essex	B	0.20	A,B,I,J*,M,N,O,P
738	Hereford/Worcester	B	0.037	A,I,J,L,O
756	R.Cumbria	B	1.00	H,L
765	BBC Essex	B	0.50	A,B,H*,I,J*,L,M N,O
774	R.Kent	B	0.70	A,I,M,N,O
774	R.Leeds	B	0.50	B,C,L
774	Severn Sound (3CR	I	0.14	A,E,I,J,L,O
792	Chiltern R.	I	0.27	A,B,I,J*,L,M,O
801	R.Devon	B	2.00	A,G,I,J*,L,O
828	Chiltern Radio	I	0.20	A,G,M,O,P
828	R.Aire(Magic 828)	I	0.12	C,D*,L
828	R.WM	B	0.20	J,L
828	2CR	I	0.27	A,E,I,O
837	R.Cumbria	B	1.50	C
837	R.Furness	B	1.00	H*
837	R.Leicester	B	0.45	A,G,I,J,L,M,O
855	R.Devon	B	1.00	I
855	R.Lancashire	B	1.50	C,H,J*
855	R.Norfolk	B	1.50	B,G,M,N,O
873	R.Norfolk	B	0.30	B,G,I,J*,L,M,O
936	GWR (Brunel R.)	I	0.18	A,G,I,J,L,O
945	R.Trent (GEM-AM)	I	0.20	A,B,C,I,J,L,O
954	DevonAir R.	I	0.32	A,G,H*,I,O
954	R.Wyvern	I	0.16	A,E,H*,J,L,O
990	WABC (Nice & Easy)	I	0.09	C,J,L,O
990	R.Aberdeen	B	1.00	H*
990	R.Devon	B	1.00	A,G,I,O
999	R.Solent	B	1.00	A,I,M,O
999	R.Trent (GEM-AM)	I	0.25	B,O
999	Red Rose R.	I	0.80	C,H
1017	WABC Shrewsbury	I	0.70	A,C,J,L,O
1026	Downtown R.	I	1.70	L
1026	R.Cambridgeshire	B	0.50	A,G,M,O
1026	R.Jersey	B	1.00	A,G,I,O
1035	R.Kent	B	0.50	A,I,M,O
1035	R.Sheffield	B	1.00	C
1035	West Sound	I	0.32	H
1107	Moray Firth R.	I	1.50	H
1116	R.Derby	B	1.20	B,C,H*,J,L,O
1116	R.Guernsey	B	0.50	A,G,I,O
1152	BRMB (Xtra-AM)	I	3.00	A,J
1152	LBC (L.Talkback R)	I	23.50	G*,I,O,P
1152	Piccadilly R.	I	1.50	C
1152	R.Broadland	I	0.83	H*,O
1161	GWR (Brunel R.)	I	0.16	A,G,H*
1161	R.Bedfordshire	B	0.10	M,O
1161	R.Sussex	B	1.00	G,I,O
1170	Ocean Sd.(SCR)	I	0.12	G,H*,I,O
1170	R.Orwell (SGR-FM)	I	0.28	M,O
1170	Signal R.	I	0.20	C,J,L
1170	Swansea Sound	I	0.58	A
1242	Invicta Snd(Coast)	I	0.32	M,O,P
1242	Isle of Wight R.	I	0.50	A,I,O
1251	Saxon R. (SGR-FM)	I	0.76	H*,M,O
1260	GWR (Brunel R.)	I	1.60	A,G,H*,I
1260	Leicester (GEM-AM)	I	0.29	G,J,M,O
1260	Marcher Sound	I	0.64	C,H*,L
1278	Pennine R.(C.Gold)	I	0.43	H*,L
1305	R.Hallam (Gt Yks R)	I	0.15	L
1305	Red Dragon (Touch)	I	0.20	A,I,O
1323	R.Bristol (Som.Snd)	B	0.63	A,H*,J*,L,O
1323	S'thern Sound(SCR)	I	0.50	G,I,M,O,P
1332	Hereward R.(WGMS)	I	0.60	B,J,L,M,O
1332	Wiltshire Sound	B	0.30	A,H*,I,O
1359	Essex R.(Breeze)	I	0.28	G,M,O
1359	Mercia Snd(Xtra-AM)	I	0.27	J,L,O
1359	Red Dragon (Touch)	I	0.20	E
1359	R.Solent	B	0.85	A,I
1368	R.Lincolnshire	B	2.00	O
1368	R.Sussex	B	0.50	G,I,M,O
1368	Wiltshire Sound	B	0.10	A,H*,I,J
1413	Sunrise R.	I	0.125	I,M,O
1431	Essex R.(Breeze)	I	0.35	A,E*,G,H*,L,M,O
1431	R.210 (Cl. Gold)	I	0.14	A,G,I,O
1449	R.Peterboro/Cambs	B	0.15	O
1458	GLR	B	50.00	A,I,O
1458	GMR	B	5.00	C
1458	R.Cumbria	B	0.50	H*
1458	R.Devon	B	2.00	A,I,O
1458	Radio WM	B	5.00	A,J
1476	C'ty Snd(1st Gold)	I	0.50	G,I,M,O,P
1485	R.Humberside	B	1.00	H*
1485	R.Merseyside	B	1.20	C,H*,J
1485	R.Sussex	B	1.00	G,M,O,P
1503	R.Stoke-on-Trent	B	1.00	A,C,H*,J,L,O
1521	R.Mercury	I	0.64	G,I,M,O
1530	Pennine R.(C.Gold)	I	0.74	H*
1530	R.Essex	B	0.15	M,O
1530	R.Wyvern	I	0.52	A,I,J
1548	Capital R. (Gold)	I	97.50	F,G*,I,L,O
1548	R.Bristol	B	5.00	A,H*
1548	R.City (City Talk)	I	4.40	C
1548	R.Forth (Max AM)	I	2.20	H*
1557	Chiltern R.(Gold)	I	0.76	A,J,L
1557	Ocean Sound (SCR)	I	0.50	A,G,H*,I,O
1557	R.Lancashire	B	0.25	C,H*
1557	Tendring R.(Mellow)	I	?	N,O
1584	R.Nottingham	B	1.00	C,H*,O
1584	R.Shropshire	B	0.50	A,J,L
1584	R.Tay	I	0.21	H*
1602	R.Kent	B	0.25	H*,I,J*,M,O

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Listeners:-
A: Darren Beasley, Bridgwater.
B: Vera Brindley, Woodhall Spa.
C: Scott Caldwell, Warrington
D: Bill Clark, Rotherham.
E: Francis Hearne, N.Bristol.
F: David Hertl, Lenesice, Czechoslovakia.
G: Sheila Hughes, Morden.
H: Eddie McKeown, Newry.
I: George Millmore, Wootton, IOW
J: Sid Morris, Rowley Regis.
K Roy Patrick, Derby
L: John Sargeant, Bolton.
M: Phil Townsend, E.London
N: Steven Verhaegen, Brussels
O: John Wells, East Grinstead
P: Michael Williams, Redhill.

Short Wave Reports

Good reception from many areas was noted during early June, but towards the end of the month the propagation conditions were disturbed by the effects of solar activity and reception from some areas was disrupted.

Considerable variations in propagation were evident in the **25MHz (11m)** band throughout the month. In N.Majorca, Jim Cash noted good reception on June 9 from DW via Julich, Germany on 25.740 (Ger to M.East, E.Asia 1100-1355) rating their signal 45323 at 1333. On June 14 he logged RFI via Issoudun, France 25.820 (Fr to E.Africa 0700-1550) as 25233.

Reception of the 11m broadcasts in the UK tends to be unreliable because they are beamed to other areas and arrive here via back scatter and other modes. Up in Largs, **John Stevens** found reception poor throughout the month, the most consistent signal stemmed from RFI on 25.820. In N.London, **Ron Galliers** logged RFI as 25222 at 0930. He also picked up UAE R, Abu Dhabi on 25.690 (Ar to Far East 0900-1100) rating the signal 35323 at 0930. Over in Co.Down, **Robert Connolly** (Kilkeel) logged DW on 25.740 as 43333 at 1101 and **Eddie McKeown** (Newry) noted R.Nederlands on 25.940 (Du to W.Africa 1030-1115, Sun only) as 24212 at 1030 and 54244 at 1057. Their signal in Edinburgh was rated SIO355 at 1040 by **Kenneth Buck**.

Although intended for other areas some of R.Australia's **21MHz (13m)** broadcasts have reached here in the morning: Darwwin on 21.525 (Eng to SE.Asia 0100-0800) was rated 24532 at 0632 by David Edwardson in Wallsend, 21.725 (Eng to S.Asia 0900-1257) SIO333 at 0915 in Largs; Carnarvon on 21.590 (Eng to Pacific areas 0100-0900) SIO433 at 0800 by **Bryan Kimber** in Hereford and 34333 at 0625 in N.Majorca.

Also noted in the morning were R.Japan via Moyabi 21.575 (Eng, Jap to Europe 0700-0830) 32333 at 0735 in Kilkeel; R.Pakistan, Islamabad 21.520 (Eng to Europe 0800-0845) 44334 at 0810 in Newry and (Eng to Europe 1100-1120) 54444 at 1107 by **Chris Shorten** in Norwich; Croatian R, Zargreb 21.480 (Eng to ?) 44444 at 0812 by **Rhoderick Illman** in Oxted; SRI via Schwarzenburg 21.770 (Eng to Asia 0900-0930) 55555 at 0905 by **Darren Beasley** in Bridgwater; AIR via Aligarh 21.735 (Eng to NE.Asia 1000-1100, Th to Thailand 1115-1200) 33333 at 1000 by **Tony Singh** in Hitchin; UAE R.Dubai 21.605 (Ar, Eng to Europe 0615-1645) 44444 at 1032 by **Peter Polson** in St.Andrews; BBC via Limassol 21.470 (Eng to M.East, E.Africa 0900-1615) 44444 at 1100 by **Jana Arunachalam** in Thumrait, Oman; BSKSA Riyadh 21.505 (Ar [Home Service] to N.Africa 1030-1700) 44344 at 1125 in N.London.

Later, UAE R. Abu Dhabi 21.510 (Ar to M.East 1200-1500) 44444 at 1435 by **John Eaton** in Woking; HCJB, Ecuador 21.455 (world-wide u.s.b.+ p.c.) 54544 at 1445 by **Ernest Randall** in Dalton; BBC via Ascension Is 21.660 (Eng to Africa 0900-1745) SIO254 at 1615 in Edinburgh; WYFR FL 21.500 (Eng, Ger to Europe, Africa 1700-2000) SIO343 at 1705 by **Philip Rambaut** in Macclesfield; WCSN, MN 21.545 (Eng to Europe 1800-2000) 44444 at 1902 by **Ken Milne** in Basingstoke; R.Nederlands via Bonaire 21.590 (Eng to Africa 1730-2025) 44444 at 1950 by **Sheila Hughes** in Morden; VOA via Greenville 21.485 (Eng to Africa 2000-2200) 44444 at 2020 by **Darran Taplin** in Brenchley; WYFR FL 21.525 (Eng, Ar, Fr, Port to W.Africa 1600-2200) 34433 at 2055 in Worthing; VOFC via Okeechobee 21.720 (Eng to Europe 2200-2300) 44233 at 2253 by **Vera Brindley** in Woodhall Spa.

Quite often the **17MHz (16m)** broadcasts to Pacific areas from R.New Zealand Int. have reached the UK. Typical ratings for their 100kW transmission from Rangataiki on 17.770 (Eng 2130-0800) were SIO322 at 2142 by **Bill Clark** in Rotherham and 35543 at 0532 in Wallsend. Two of R.Australia's broadcasts have also been heard here in the early morning: 17.715 via Shepparton (Eng to Pacific areas 0000-0830) rated 34433 at 0350 in Worthing; 17.750 via Darwin (Eng, Fr to S.E.Asia 0600-0900) SIO322 at 0630 by **Francis Hearne** in Bristol.

Later, R.Finland via Pori 17.800 (Eng to Japan, Far East 0830-0855) rated 44333 at 0815 in Morden; KHBI, N.Mariana Is 17.555 (Eng to NE.Asia, Russia 0800-1200) 33333 at 0940 in Norwich; Africa No.1, Gabon 17.630 (Fr, Eng to W.Africa 0700-1600) was 43444 at 1204 in Kilkeel; Voice of Israel, Jerusalem 17.545 (Heb to W.Europe, N/C.America 1105-2200) 55444 at 1235 in Woking; R.Romania Int, Bucharest 17.850 (Eng to Europe 1300-1355) 43333 at 1312 in St.Andrews; BBC via Mahe 17.885 (Eng to E.Africa 0900-1400) SIO222 at 1331 by **Julian Wood** in Elgin; RCI via Sackville, 17.820 (Eng to Europe 1600-1629) 44444 at 1625 in Thumrait; RFI via Issoudun 17.620 (Eng to Africa 1600-1700) 44243 at 1637 in Newry and

Long Wave Chart

Freq kHz	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	E
153	Donebach	Germany	500	A,B,C,D,E*,G,H*,I*,J,K,N
153	Brasov	Romania	1200	B,H*
162	Allouis	France	2000	A,B,C,D,E*,G,H*,I*,J,K,M,N
171	Kaliningrad	Russia	1000	B,C,G*,H*,I*,J,K*
171	Medi 1-Nador	Morocco	2000	E,F*,K
171	Moscow	Russia	500	D
177	Oranienburg	Germany	750	A,B,C,D,G,H*,I*,J*,K
183	Saarlouis	Germany	2000	A,B,C,D,E*,G,H*,I*,J,K,M,N
198	BBC Droitwich	UK	500	A,C,E*,G,H,I*,J,M,N
198	BBC Westerglen	UK	50	B
207	Munich	Germany	500	B,C,D*,G,H*,I*,J,K
207	Al Karanah	Jordan	600	F*
216	RMC Roumoules	S.France	1400	B,C,D,E,H*,I*,J,K,L*,N
216	Oslo	Norway	200	B,G*,H*
225	Konstantinow	Poland	2000	B,G*,H*,I*,J,K*
234	Junglinster	Luxembourg	2000	A,B,C,D,E*,G,H*,I*,J,K,N
234	St.Petersburg	Russia	1000	H*
243	Kalundborg	Denmark	300	A,B,C,D*,G,H,I*,J,K,N
252	Tipaza	Algeria	1500	G*,H*,I*,K*,O*
252	Atlantic 252	S.Ireland	500	A,B,C,D,E*,G,H,I*,J,K,M,N
261	Burg	Germany	200	A,G,I
261	Moscow	Russia	2000	B,C,J,K,N
270	Topolna	Czechoslovakia	1500	B,C,E*,G,I*,J,K*,N
270	Orenburg	USSR	15	K*
279	Minsk	Byelorussia	500	B,G*,H*,I*,J

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Listeners:-
A: Vera Brindley, Woodhall Spa.
B: Kenneth Buck, Edinburgh.
C: Tim Bucknall, Congleton.
D: Scott Caldwell, Warrington.
E: Jim Cash, N.Majorca.
F: David Hertl, Lenesice, Czechoslovakia.
G: Sheila Hughes, Morden.
H: Eddie McKeown, Newry.
I: George Millmore, Wootton, IOW.
J: Sid Morris, Rowley Regis.
K: Fred Pallant, Storrington.
L: Alan Roberts, Quebec, Canada.
M: Tom Smyth, Co.Fermanagh.
N: Phil Townsend, E.London.
O: Steven Verhaegen, Brussels.

Tropical Bands

Freq MHz	Station	Country	UTC	DXer
3.200	TWR	Swaziland	2025	U
3.210	R.Mozambique	Mozambique	2200	U
3.230	R.Nepal	Kathmandu	0215	U
3.250	R.Pyongyang	N.Korea	2230	U
3.255	BBC via Maseru	Lesotho	2004	H,M
3.270	SWABC 1, Namibia	S.W.Africa	2100	Q
3.290	SWABC 2, Namibia	S.W.Africa	0400	U
3.295	Reykjavik	Iceland	2000	N
3.300	R.Cultural	Guatemala	0230	I
3.315	SLBS Freetown	Sierra Leone	2119	J,M
3.320	R.Orion	S.Africa	2303	H,I
3.325	R.Liberal	Brazil	0320	U
3.325	FRCN Lagos	Nigeria	2300	J
3.355	R.Nac.Luanda	Angola	2350	U
3.365	R.Rebelde, La Julia	Cuba	0228	I,M
3.365	GBC Radio 2	Ghana	2057	D,F,I,K,M,N,O,Q
3.380	R.Malawi	Malawi	2117	M,U
3.777	VOIRI Tehran	Iran	0035	U
3.905	AIR Delhi	India	1650	A
3.915	BBC Kranji	Singapore	2002	L
3.945	AIR Gorakhpur	India	0220	U
3.955	BBC Skelton	England	0406	D,M
3.965	RFI Paris	France	1950	C,D,F,K,M
3.975	BBC Skelton	England	0430	M
3.980	VOA Munich	Germany	1953	F,K,L,M,N
3.985	R.Beijing, China	via SRI Berne	2030	C,L,M,R
3.985	SRI Berne	Switzerland	1730	D,K,M
3.995	DW Cologne (Julich)	Germany	2005	K,M,N
4.010	Bishkek	CIS	2305	U
4.055	R.Moskva 1 (Kalinin)	Russia	2015	C,M
4.500	Xinjiang	China	2326	H
4.600	R.Baghdad	Iraq	2020	N,U
4.735	Xinjiang	China	2204	H
4.750	R.Bertoura	Cameroon	2041	I,O
4.750	PBS Xizang, Lhasa	China	2018	M
4.760	Yunnan Kumming	China	2200	U
4.765	Brazzaville	PR Congo	1900	B,F,G,I,K,L,M,N,O,P,Q,U
4.770	FRCN Kaduna	Nigeria	2045	F,H,I,J,K,M,N,O,Q,T
4.775	Kabul City Service	Afghanistan	1834	O
4.780	RTD	Djibouti	1957	O
4.783	RTM Bamako	Mali	2128	I
4.790	Azad Kashmir R.	Pakistan	0145	S
4.795	R.Douala	Cameroon	2020	J,K,M,N,O,Q
4.799	R.Buenas Nuevas	Guatemala	2350	U
4.800	LNBS Lesotho	Maseru	2044	O
4.800	R.Moscow Yakutsk	Siberia	2154	M
4.805	R.Nac.Amazonas	Brazil	2315	H
4.810	R.Moskva 1 (Yerevan)	Armenia	1930	M,N
4.815	R.diff TV Burkina	Ouagadougou	2105	I,O
4.820	La Voz Evangelica	Honduras	0438	I
4.820	R.Moskva 4 (Khanty-M)	Russia	2115	M
4.825	R.Cancao Nova	Brazil	0450	G
4.825	R.Moscow (Yakutsk)	Siberia	2022	M,N
4.825	Ashkhabad	Turkmenia	1815	K,N
4.830	R.Tachira	Venezuela	2300	G,H,I,M,N,Q
4.832	R.Reloj	Costa Rica	0501	H
4.835	ABC-Alice Springs	Australia	2110	U
4.835	R.Tezulutlan, Coban	Guatemala	0311	H
4.835	RTM Bamako	Mali	1958	B,F,G,M,N,O,Q
4.845	ORTM Nouakchott	Mauritania	2052	B,F,I,M,N,O,U
4.850	R.Yaounde	Cameroon	1955	I,M,N,P
4.850	AIR Kohima	India	1959	O
4.850	R.Tashkent 2	Uzbekistan	0000	J,M
4.860	AIR New Delhi	India	1900	O,Q
4.865	PBS Lanzhou	China	2200	B,M,N
4.870	R.Cotonou	Benin	2015	H,I,M,N,O,Q
4.885	R.Clube do Para	Brazil	2355	G
4.885	R.Difusora Acreana	Brazil	0440	G
4.885	Voice of Kenya	Kenya	1847	O
4.890	RFI Paris	via Gabon	0414	I,M
4.890	ORTS Dakar	Senegal	2040	H,I,O,U
4.895	Voz del Rio Arauca	Colombia	0325	G,N
4.895	R.Moscow (Kalinin)	Russia	1900	M,O
4.900	SLBC Colombo	Sri Lanka	0030	U
4.905	R.Nat.N'djamena	Chad	2028	I,M,N,O
4.910	R.Zambia, Lusaka	Zambia	1849	F,O
4.915	Armonias del Caqueta	Colombia	0240	G
4.915	R.Ghana, Accra	Ghana	2010	M,N,O,P,T
4.915	Voice of Kenya	Kenya	2040	O
4.920	R.Quito	Ecuador	0302	H,U
4.920	AIR Madras	India	2033	M
4.925	R.Nacional, Bata	Eq.Guinea	2024	G
4.930	R.Moscow	Russia	2035	M,N
4.935	R.Capixaba	Brazil	0445	G
4.935	Voice of Kenya	Kenya	1950	F,G,H,I,M,N,O,Q,T
4.940	R.Kiev 2	Ukraine	2010	K,M,N,O
4.958	R.Baku	Azerbaydzhan	2039	M
4.960	AIR New Delhi	India	2350	N,S
4.975	R.Uganda, Kampala	Uganda	2010	F,M,O
4.975	R.Dushanbe	Tadzhikistan	2330	M
4.980	Ecos del Torbes	Venezuela	2225	N
4.985	R.Brazil Central	Brazil	2307	H
4.990	AIR via Madras	India	0000	J
4.990	FRCN Lagos	Nigeria	2047	E,H,I,J,M,O
4.990	R.Ancash, Huaraz	Peru	0033	M
5.005	R.Nacional, Bata	Eq.Guinea	2040	F,H,I,J,M,O,P,Q
5.005	RTM Sibu, Sarawak	Malaysia	2220	U
5.010	R.Garoua	Cameroon	2045	F,G,I,J,M,N,O,Q
5.014	R.Pioneira, Teresina	Brazil	0135	G
5.015	R.Moskva 2	Russia	2046	M
5.020	ORTN Niamey	Niger	0515	D
5.030	R.Catolica, Quito	Ecuador	0425	G
5.035	R.Bangui	C.Africa	2014	O
5.035	R.Alma Ata	Kazakshtan	2050	F,H,M
5.040	R.Tbilisi 1	Georgia	2015	M,N,O,Q
5.045	R.Cultura do Para	Brazil	0325	U
5.047	R.Togo, Lome	Togo	2008	G,H,I,K,M,O,P
5.050	SBC Singapore	Singapore	2230	U
5.050	R.Tanzania	Tanzania	2010	F,H,O,Q
5.055	RFO Cayenne(Matoury)	French Guiana	0417	M
5.060	PBS Xinjiang	China	2305	K,U
5.075	Caracol Bogata	Colombia	0020	D,M,Q
5.260	R.Alma Ata 2	Kazakhstan	2048	I,M

DXers:

A: Jana Arunachalam, Thumrait, Oman.
B: Charles Beanland, Gibraltar.
C: Scott Caldwell, Warrington.
D: Jim Cash, N.Majorca.
E: Bill Clark, Rotherham.
F: Robert Connolly, Kilkeel.
G: Antonio De Abreu-Teixeira, Evesham.
H: David Edwardson, Wallsend.
I: Ron Galliers, N.London.
J: Bill Griffith, W.London.
K: Sheila Hughes, Morden.
L: Rhoderick Illman, Oxted.
M: Eddie McKeown, Newry.
N: Sid Morris, Rowley Regis.
O: Fred Pallant, Storrington.
P: Roy Patrick, Derby.
Q: John Sargeant, Bolton.
R: Chris Shorten, Norwich.
S: Tony Singh, Hitchin.
T: Darran Taplin, Brenchley.
U: Jim Willett, Grimsby.

43433 at 1604 in N.Majorca; HCJB, Ecuador 17.790 (Eng to M.East 1630-1800) SIO444 at 1700 in Hereford; SRI via Sottens 17.635 (Eng to M.East, E.Africa 1700-1730) SIO434 at 1708 in Macclesfield; WWCR, Nashville 17.535 (Eng to Europe, USA 1200-2200) 32323 at 1722 in Woodhall Spa.

During the evening VOA via Tangier 17.895 (Eng to Africa 1600-2200) rated SIO455 at 1830 in Edinburgh; RCI via Sackville 17.875 (Eng to C.Europe 1900-1929) SIO334 at 1908 by **Michael Williams** in Redhill; WSHB, Cypress Creek 17.510 (Eng to Africa 1600-2000) 34333 at 1909 in Basingstoke; R.Sofia, Bulgaria 17.825 (Eng to N/W.Africa 1945-2030) 34433 at 1951 in Oxted; R.Nederlands via Bonaire 17.605 (Eng to W.Africa 1930-2030) 32232 at 2003 by **Charles Beanland** in Gibraltar; R.Havana Cuba 17.705 (Eng to Europe 2000-2100) 35533 at 2014 in Brenchley; also 17.815 (Eng to Africa 2000-2100) 42443 at 2100 in Bridgwater; VOFC Taiwan via Okeechobee 17.750 (Chin, Fr, Ger, Eng to Europe 1900-2300) 43433 at 2129 in N.London.

In the **15MHz (19m)** band three of R.Australia's broadcasts have been reaching the UK: Shepparton on 15.240 Eng to Pacific areas 0000-0930) rated 32332 at 0305 in Worthing, 15.320 (Eng to New Guinea 2100-0730) 42552 at 2210 in Bridgwater and 15.170 from Darwin (Eng, Chin to Asia 0900-1400) 55545 at 1200 in Norwich; .

Some of the broadcasts to Europe originate from RFPI Costa Rica 15.030 (Eng 1800-1200) 44333 at 0700 in Morden; HCJB, Ecuador 15.270 (Eng 0700-0830) 33233 at 0816 in Woodhall Spa; UAE R, Dubai 15.435 (Ar, Eng 0615-1545) 32222 at 1053 in Newry; AWR via Samara 15.125 (Eng 1600-1630) SIO423 at 1600 in Macclesfield; VOA via Gloria 15.155 (Cz 1600-1800) SIO444 at 1730 by **John Coulter** in Winchester; RNB, Brazil 15.265 (Eng, Ger 1800-2050) 54544 at 1846 by **Richard Radford-Reynolds** in Guildford; R.Iraq Int, Baghdad 15.210 (Eng 1800-2000) 55444 at 1850 by **Scott Caldwell** in Warrington; WCSN, Maine 15.665 (Eng 1900-2100) 34333 at 1907 in Basingstoke; VOIRI Tehran 15.260 (Eng 1830-1930) 43433 at 1915 in Brenchley; Voice of Vietnam, Hanoi 15.010 (Eng, Viet, Russ, Fr, Sp 1600-0000?) 34443 at 1950 in Oxted; R.Kuwait 15.505 (Ar 1800-0000, also to N.Africa) 54555 at 2024 in Woking; R.Damascus, Syria 15.095 (Eng 2005-2105, also to USA) 43233 at 2045 in Dalton; WWCR, Nashville 15.690 (Eng 1200-0000) 44434 at 2249 in N.London.

Throughout the day there are numerous broadcasts to other areas. Amongst those noted in the morning were SLBC, Sri Lanka 15.425 (Eng to S.Asia 0030-0430) 32332 at 0400 in Thumrait; Voice of Malaysia, Kuala Lumpur 15.295 (Eng to SE.Asia, Australia 0555-0825) SIO423 at 0650 in Hereford; R.Austria Int. via Moosbrunn 15.450 (Eng, Ger to Australia, NZ 0800-1100) 44544 at 1030 in St.Andrews; AIR via Aligarh, India 15.050 (Eng to NE.Asia, Pacific 1000-1100) SIO222 at 1100 in Largs; SRI via Schwarzenburg 15.505 (Eng to Australia, Asia 1100-1130) SIO344 in Edinburgh; RTL Luxembourg 15.350 (Eng, Fr to E.USA 24hrs) SIO322 at 1107 in Rotherham.

Later, R.Finland via Pori 15.400 (Eng to USA 1330-1400) was rated SIO222 at 1337 in Elgin; DW via Julich 15.415 (Eng to S.Asia 1600-1650) SIO555 at 1600 by **Tom Smyth** in Co.Fermanagh; Africa No.1, Gabon (Fr to W.Africa 1600-2000) 44444 at 1744 in Gibraltar; R.Finland via Pori 15.440 (Eng to W.Africa 1830-1900) SIO333 at 1855 in Redhill; BBC via Woofferton, UK 15.070 (Eng to N.Africa 0700-2315) 55555 at 2205 in N.Majorca; UAE R, Abu Dhabi 15.305 (Eng to USA 2200-0000) 43333 at 2225 in Kilkeel; DW via Cyclops 15.425 (Port to S.America 2130-2300) SIO444 at 2230 by **Antonio De Abru-Teixeira** in Evesham; VOA via Tinang 15.305 (Eng to Asia, Oceania, Pacific 2200-0000) SIO444 at 2345 in N.Bristol.

UK listeners have reported good reception from many areas in the **13MHz (22m)** band. Although beamed to Asia, two of R.Australia's broadcasts via Carnarvon have been clearly received here: 13.755 (Eng to S.Asia 1430-2100) was 44434 at 1605 in Dalton; 13.705 (Eng to SE.Asia 2100-2300) 45333 at 2258 in Woking. In N.Majorca their 13.755 transmission was 44333 at 1620.

Also taking advantage of the propagation conditions in this band are R.Austria Int. via Moosbrunn 13.730 (Ger, Fr, Eng, Sp to Europe 0400-1700) SIO444 at 0730 in N.Bristol; SRI via Sottens 13.685 (Eng to Australia 0900-0930) 55555 at 0900 in Bridgwater; also 13.635 (Eng to Asia 1100-1130) SIO433 at 1115 in Evesham; DW via Julich 13.610 (Eng to M.East, Africa 1500-1550) 43433 at 1500 in Thumrait; UAE R.Dubai 13.675 (Eng to Europe 1030, 1330 & 1630) SIO444 at 1630 in Edinburgh; KSDA, Guam 13.720 (Eng to S.Asia, E.Africa 1700-1900) 35233 at 1815 in Newry; RCI via Sackville 13.650 (Eng to C.Europe 1900-1959) 44444 at 1908 in St.Andrews; R.Kuwait 13.620 (Eng to Europe, USA 1800-2100) 55544 at 1922 in Brenchley; SRI via Sottens 13.635 (Eng to M.East, Africa 2000-2030) SIO323 at 2002 in Redhill; Croatian R, Zagreb 13.640 (News in Eng) heard at 2103 by **Roy Patrick** in Derby; BRTN Int. via Wavre 13.655 (Fr, Eng, Sp to S.America 2130-?) 42443 at 2130 in Oxted; WHRI Red Lion 13.760 (Eng to Europe, Canada 1700-0000) 32232 at 2240 by **Robin Harvey** in Bourne; UAE R, Abu Dhabi 13.605 (Eng to USA 2200-0000) 44544 at 2325 in Wallsend.

The **11MHz (25m)** band has much to offer the listener throughout the day. Amongst the many entries in the reports were R.Nederlands via Bonaire 11.895 (Eng to Pacific areas 0930-1030) 23332 at 1005 in St.Andrews; KNLS Anchor Point 11.580 (Eng to E.Asia 1300-1400) SIO111 at 1305 in Macclesfield; VOA via Tinang 11.715 (Eng to Asia, Pacific 1200-1330) SIO343 at 1315 in Hereford; SLBC, Sri Lanka 11.800 (Hi, Ka, Mal, Sin, Ta, Tel, Ur to Asia 0630-1730) 33333 at 1330 in Hitchin; FEBA via Mahe 11.995 (Eng to S.Asia) 43433 at 1403 in Thumrait; Voice of the Mediterranean, Malta 11.925 (Eng, Ar to N.Africa 1400-1600) 42433 at 1410 in Dalton; R.Austria Int. via Moosbrunn 11.780 (Ger, Eng, Fr to S/SE.Asia 1400-

1700) 43333 at 1530 in Morden; R.Pakistan, Islamabad 11.570 (Eng to M.East, N.Africa 1600-1630) 55555 at 1610 in Norwich.

R.New Zealand's broadcast to Pacific areas may reach the UK during the evening. Their 100kW transmission from Rangataiki, N.Island on 11.735 (Eng 1900-2130) was SIO222 at 1929 in Rotherham. Also noted were R.Veritas Asia via Palauig 11.790 (Man to Asia 2100-2255) 44444 at 2100 in Guildford; R.Sweden 11.730 (Eng to Asia, Australia 2030-2130) 43343 at 2105 in Worthing; Wings of Hope, Lebanon 11.530 (Eng to M.East 2000-2200) 44444 at 2114 in Kilkeel; R.Sofia, Bulgaria 11.660 (Eng to USA 2145-2315) SIO322 at 2145 in Co.Fermanagh; R.Nacional da Amazonia, Brazil 11.780 (Port) SIO444 at 2230 in Evesham; BBC via Skelton 12.095 (Eng to N/W.Africa 0900-2315) 55454 at 2250 in N.Majorca.

Some 25m broadcasts to Europe were also mentioned: REE via Agranda 11.920 (Sp 0700-1500) 45544 at 0936 in N.London; RFI via Allouis 11.670 (Fr, Eng, Russ, Ser, Ro 0600-1600) 55454 at 1009 in Woking; R.Tunis via Sfax 11.550 (Ar 0430-2300) SIO444 at 1112 in Winchester; Polish R, Warsaw 11.815 (Eng 1200-1225) 54454 at 1210 in Bridgwater; Voice of Israel, Jerusalem 11.587 (Eng 1300-1325, also to N/C.America) 44333 at 1300 by **Phil Townsend** in E.London; R.Romania Int, Bucharest 11.940 (Eng 1300-1355, 1900-2000 and 2100-2200) 44434 at 1348 in Woodhall Spa, 54444 at 1900 in Brenchley and 55444 at 2110 in Warrington; AIR via Aligarh 11.620 (Hi, Eng 1845-2230) SIO544 at 1915 in Edinburgh; R.Beijing, China 11.500 (Eng 2000-2200) 35543 at 2009 in Wallsend; R.Damascus, Syria 12.085 (Eng 2005-2105) 35354 at 2040 in Newry; R.Budapest, Hungary 11.910 (Eng 2100-2200) 42443 at 2120 in Basingstoke; R.Finland via Pori 11.755 (Fin, Sw, Ger, Fr, Eng 0530-2155) 44455 at 2139 in Gibraltar; R.Tirana, Albania 11.825 (Eng 2200-2230, also to USA) 43323 at 2216 in Bourne; R.Havana, Cuba 11.930 (Eng 2200-2300) heard at 2305 by **George Tebbitts** in Penmaenmawr; R.Japan via Moyabi 11.735 (Jap, Eng 2200-0000) SIO433 at 2315 in N.Bristol.

DX signals reached the UK in the **9MHz (31m)** band from R.New Zealand Int, via Rangitaiki 9.700 (Eng to Pacific areas 0800-1205) 32333 at 0725 in Kilkeel; HCJB, Ecuador 9.745 (Eng to S.Pacific 0730-1125) 34443 at 0804 in Guildford; R.Australia 9.540 (Eng to S.Asia) 32433 at 1600 in Bridgwater, also 9.655 (Eng to Pacific areas?) 34543 at 1952 in Wallsend; AIR via Delhi 9.910 (Eng to Australia, NZ 2045-2230) 44434 at 2152 in Basingstoke; R.Thailand, Bangkok 9.655 (Eng to SE.Asia 2300-0430) 22332 at 2312 in N.London; R.Nac. del Paraguay 9.735 (Sp 0800-0400) 43333 at 0100 by **Bill Griffith** in W.London.

Many **7MHz (41m)** broadcasts are intended for European listeners. Some stem from VOA via Woofferton 7.325 (Eng 0600-0700) SIO333 at 0615 in N.Bristol; Vatican R, Italy 7.250 (It, Fr, Eng 1000-1030) SIO544 at 1015 in Hereford; AIR via Aligarh 7.412 (Eng 1845-1945, 2045-2230) 32332 at 1906 in Oxted, 55444 at 2146 in Bridgwater and 33323 at 2226 in Bourne; R.Poland, Warsaw 7.125 (Eng 1930-?) 33433 at 1938 in St.Andrews; Voice of Greece, Athens 7.450 (Gr, Eng, Fr, Ger 2000-2050, also Gr 2200-?) 44434 at 2010 in Dalton and SIO445 at 2210 in Edinburgh; Beograd, Serbia, 7.200 (Relays R.Beograd 1) 32323 at 2027 in Woodhall Spa; R.Czechoslovakia, Prague 7.345 (Eng 2100-2130) 55544 at 2100 in Brenchley; R.Moscow via Dushanbe 7.320 (Eng 1600-2300) 44444 at 2115 in Morden.

Also noted were RSA, S.Africa 7.270 (Eng to Africa 0200-0400), 34433 at 0230 in Thumrait; WWCR Nashville 7.435 (Eng to USA 0000-1200) 43343 at 0645 in N.London; WHRI via Noblesville 7.315 (Eng to USA 0000-1100) SIO433 at 0725 in Macclesfield; R.Australia via Brandon? 7.260 (Eng to New Guinea 1100-2100) 44444 at 2016 in Kilkeel; WSHB Cypress Creek 7.395 (Eng to USA, Caribbean 0000-0200) 44344 at 0022 in Newry.

In the **6MHz (49m)** band, R.Pyongyang, N.Korea 6.576 (Eng to Europe, M.East, Africa 2000-2050) rated SIO322 at 2015 in Hereford; PBS Xinjiang, China 5.800 (Uig 2200?-0200) 34433 at 2229 in Wallsend; R.Aparecida, Brazil 6.135 (Port 0800-0300) was heard at 2245 in Evesham; R.Japan via BBC Skelton 6.160 (Eng 2300-0000) 45444 at 2300 in Derby; BBC via Antigua 5.975 (Eng to C.America 2000-0730) 32333 at 2317 in Kilkeel.

Transatlantic DX Chart

Freq kHz	Station	Location	Time (UTC)	DXer
		USA		
1010	WINS	New York, NY	0200	B
		Canada		
590	VOCM	St.John's, NF	0250	B
930	CJYQ	St.John's, NF	0315	A,B
1150	CKOC	Hamilton, ON	0315	B
		C.America& Caribbean		
1610	Caribbean B'cast	The Valley, Anguilla	0235	B
		Other Areas		
650	GRF	Godthab, Greenland	0110	B

DXers:
A: Ron Damp, Worthing.
B: Jim Willett, Grimsby.

Station Addresses

BBC Radio Humberside,
63 Jameson Street,
Hull HU1 3NU.

ILR Radio Orwell,
Electric House,
Lloyds Avenue,
Ipswich IP1 3HZ.

Radio Mediterranee Int,
3 Rue Emsallah,
Tanger, Morocco.

Radio For Peace Int,
Ap.88, Santa Ana,
Costa Rica.

Radio CKCM,
Box 560,
Marystown,
NF A0E 2M0,
Canada.

Radio WKNR,
9446 Broadview Road,
Cleveland,
OH 44147, USA.

Equipment Used

Jana Arunachalam, Thumrait, Oman: Panasonic RF-B45 or Sony ICF-7600DS + 6m wire.
Charles Beanland, Gibraltar: Sangean ATS-803 + a.t.u. + r.w or Howes AA2.
Darren Beasley, Bridgwater: Philips D2935 + Hexagon loop or a.t.u. + 10m wire.
Vera Brindley, Woodhall Spa: Sangean ATS-803A + whip or r.w.
Kenneth Buck, Edinburgh: Lowe HF-225 + r.w. in loft or screened loop.
Tim Bucknall, Congleton: Sony ICF-2001D + AN-1.
Scott Caldwell, Warrington: Saisho 2000 or Sony ICF-2001 + 60m wire.
Jim Cash, N.Majorca: Sony ICF-SW1E + r.w.
Bill Clark, Rotherham: Sony ICF-2001D + built-in whip or r.w.
Robert Connolly, Kilkeel: Sangean ATS-803A + 30m wire in loft or AN-1.
John Coulter, Winchester: Yaesu FRG-7 + r.w.
Ron Damp, Worthing: Racal RA17 + Hex Loop or 30m inverted V dipole.
Antonio De Abreu-Teixeira, Evesham: Sony ICF-2001D + 12m wire.
John Eaton, Woking: Lowe HF-225 + Datong A270 in loft.
David Edwardson, Wallsend: Trio R-600 + inverted V trap dipole.
Ron Galliers, London: Philips D-2935 + a.t.u. + 30m wire.
Bill Griffith, London: Matsui MR-4099 + 25m wire.
Robin Harvey, Bourne: Matsui MR-4099 + s.w. loop.
Francis Hearne, N.Bristol: Sharp WQT370 + r.w.
Sheila Hughes, Morden: Sony ICF-7600DS + loop; Panasonic DR48 + 15m wire.
Rhoderick Illman, Oxted: Kenwood R-5000 + Lowe Mag.Balun + 19m wire.
Bryan Kimber, Hereford: Zenith R-7000 or Realistic SX190 + 25m wire.
Eddie McKeown, Co.Down: Tatung TMR-7602.
George Millmore, Wootton, IOW: Sangean ATS-803A + loop.
Ken Milne, Basingstoke: Matsui MR-4099 + built-in whip or 6m wire in loft.
Sid Morris, Rowley Regis: Kenwood R-5000 + 31m wire.
Fred Pallant, Storrington: Kenwood R-2000 + r.w. in loft.
Roy Patrick, Derby: Lowe HF-125 + 22m wire.
Peter Polson, St.Andrews: Lowe HF-225 + loop or indoor Joystick.
Richard Radford-Reynolds, Guildford: Sangean ATS-803A + 10m wire.
Philip Rambaut, Macclesfield: Int.Marine Radio R-700M + r.w.
Ernest Randall, Dalton: Lowe HF-225 + 15m wire.
Alan Roberts, Quebec, Canada: Lowe HF-225 + 19m or 11m dipole.
John Sargeant, Bolton: Lowe HF-225 + loop or 20m wire.
Chris Shorten, Norwich: Matsui MR-4099 + 10m wire.
Tony Singh, Hitchin: Zenith 7000 or Grundig Satellit 3400 + built-in whip.
Tom Smyth, Co.Fermanagh: Morphy Richards R191 or Vega Selena B210 + whip.
John Stevens, Largs: Hammarlund HQ 180 or Icom R-70 + r.w.
Darran Taplin, Brenchley: Yaesu FRG-7700 + FRT-7700 + 35m wire or FRA-7700.
George Tebbitts, Penmaenmawr: Blaupunkt Stereo Radiogramme circa 1968.
Phil Townsend, London: Lowe HF-225 + loop or r.w.
John Wells, E.Grinstead: RCA AR88D + loop, also LW converter.
Jim Willett, Grimsby: RCA AR77 + 4m loop or Trio 9R-59DS + a.t.u. + X dipole.
Michael Williams, Redhill: Sony CFS-201L cassette radio plus built-in whip.
Julian Wood, Elgin: Kenwood R-2000 + Yaesu FRT-7700 a.t.u. + 6m wire.

Long Wave Maritime Beacon Listening

Brian Oddy G3FEX
Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS

The extensive changes to the l.w. maritime radio-beacon service, which took place on April 1, were outlined in my article for the June '92 *SWM*. Some of the beacons did not commence operation on their new frequencies until a few days after the change-over was implemented and several failed, but they were soon restored to working order. No doubt the engineers involved with the project were kept very busy! The reports now reaching me suggest that the new system has settled down, but some further changes may become necessary if mutual interference problems arise.

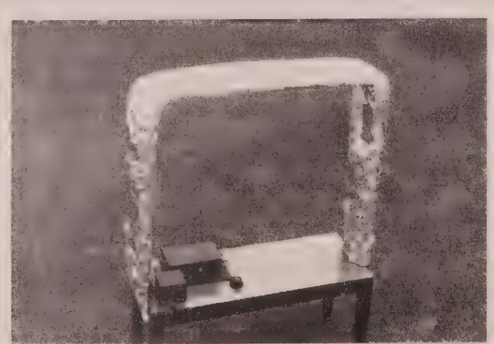
Since the changes, DXers have been enjoying the challenge of searching for beacons on their new frequencies. The keyed carrier (c.w.) transmission system now in use is proving to be advantageous, especially when attempting to identify the weaker signals. Beacons which were hitherto inaudible have been logged by some DXers. Writing from Worcester Park, **Taff Rees** says, "So far as I am concerned the reorganisation has meant that I am able to hear stations at a greater distance than previously (e.g. SB South Bishop, FB Flamborough Head)".

Quite a number of beacons that were not listed in the June chart were logged this time, however it was not all plain sailing! Much confusion arose because some of the aeronautical radio-beacons which operate within, or very close to, the maritime radio-beacon band have two letter callsigns. Several DXers logged an aeronautical beacon (LA) on 282.0kHz as Lista Lt, Norway, which also uses the callsign (LA) but is on 300.5. Another one on 317.0 (VS), was frequently noted as Cabo Estay Lt, Spain (VS), but that is on 312.5. Before logging a beacon it is important to compare the frequency (if known) with that quoted in the *SWM* charts, or some other up-to-date guide and study the keying sequence. The maritime beacons key their callsign in Morse code at least twice during an initial period lasting 13 seconds and then radiate a plain carrier for 47 seconds, or 43 seconds if there is a short pause before the cycle is repeated. Most aeronautical beacons radiate a plain carrier which is keyed once with the callsign in Morse code.

After studying the details of the new system in the June issue, several readers decided to check the band for the first time, using the chart as their guide. Beacons along both sides of the English Channel were logged by **Ron Damp** in Worthing during the evening, but a high level of electrical interference masked some of the weaker signals. **Ken Milne** (Basingstoke) says, "I tried what should have been the easiest - St.Catherines Lt (CP) on 293.0 and there it was amongst all the noise." Encouraged by this result, Ken now intends to build a l.w. loop for use with his Matsui MR4099 portable. Down in Cornwall, **Vic Doidge** (Gunnislake) compiled an impressive first list during the evening with a Yaesu FRG-7700 plus FRT-7700 and random wire antenna.

All of the beacons in the first report from **Ernest Randall** in Dalton were received during daylight with a Lowe HF-225 plus 15m outdoor wire antenna. The Sumburgh Head beacon (SB) on 304.0 was heard in Hyde by **Dave Logan** using a Saisho SW5000 with just the internal ferrite rod antenna. After listening to the Flamborough Head beacon (FB) on 302.5, he sent a QSL card to the lighthouse keeper. In confirmation, he received a bumper packet of information about the new beacon service! DXers should note that most lighthouses are now unmanned.

In an attempt to improve reception, several DXers are experimenting with loop antennas. A screened loop built by **Kenneth Buck** (Edinburgh) is shown in the photograph. It is supported by a small wooden table. A strip of bubble plastics sheeting was wound around the loop to lower the capacitance to the screening, which consists of a strip of aluminium baking foil. An air gap in the screening ensures that it does not act as a shorted turn. A source follower (f.e.t.) is used to couple the high impedance loop to the 50Ω input of his Lowe HF-225 receiver via coaxial cable.



The screened loop built by Kenneth Buck.

DXers:
A: Darren Beasley, Bridgwater.
B: Kenneth Buck, Edinburgh.
C: Robert Connolly, Kilkeel.
D: John Coulter, Winchester.
E: Ron Damp, Worthing.
F: Viv Doidge, Gunnislake.
G: Bill Eyre, Stockport.
H: Chris Haigh, Huddersfield.
I: Rhoderick Illman, Oxted.
J: Dave Logan, Hyde.
K: Pat Manning, Torpoint.
L: George Millmore, Wootton, IOW.
M: Ken MIlne, Basingstoke
N: Fred Pallant, Storrington.
O: Philip Rambaut, Macclesfield.
P: Ernest Randall, Dalton.
Q: Taff Rees, Worcester Park.
R: John Sargeant, Bolton.
S: John Stevens, Largs.
T: Kelvin Sutherland, Anglesey.
U: Philip Townsend, E.London.
V: Steven Verhaegen, Brussels.
W: John Wells, E.Grinstead.

Freq (kHz)	Callsign	Station Name	Location	DXer
284.5	LZ	Lizard Lt	S.Cornwall	A*,B,C,D,F,G,K,L,O*,S,T,W
286.0	TR	Tuskar Rock Lt	S.Ireland	A*,B,C,F,G,H,K,O,P,R,S,T,U,W
286.5	BY	#Baily Lt	S.Ireland	C
286.5	FE	Cap Frehel Lt	France	W
286.5	FT	Cap Ferret Lt	W.France	C*,F
286.5	NK	Inchkeith Lt	F of Firth	B
287.5	DO	Rosedo Lt	France	F,W
287.5	FR	Faerder Lt	Norway	G,V,W
288.0	HH	Hoek van Holland	Holland	B,V,W
288.0	OH	Old Hd of Kinsale	S.Ireland	F,G,K,S,T
288.5	YM	IJmuiden Front Lt	Holland	G,V,W
289.0	BL	Butt of Lewis Lt	Is of Lewis	B,S
289.0	BY	Baily Lt	S.Ireland	B,C,F,G,H,K,O,R,S,T,W
289.5	MN	Hammerodde Lt	Denmark	C*,G
289.5	SN	Ile de Sein NW Lt	France	K,O
290.0	BS	Port en Bessin Lt	France	W
290.0	FD	Fidra Lt	F of Forth	B
290.5	DY	Duncansby Hd Lt	NE.Scotland	B,P
290.5	SB	S.Bishop Lt	Pembroke	A*,B,C,D,F,G,H,I,K,O,P,Q,R,S,T,U,W
290.5	VI	Cabo Villano Lt	N.Spain	C*
291.5	OR	Orskar Lt	Sweden	F
291.5	SU	South Rock LV	Co.Down	A*,B,C,D,G,I,P,R,S,T,W
292.0	MH	Mahon, Minorca	Balearic Is	F
292.0	SJ	Souter Lt	Sunderland	B,D,G,H,O,P,R,T,W
292.5	SM	Pt St.Mathieu Lt	France	C*,D,F,G,K,T,U,W
293.0	CP	St.Catherine's Lt	IOW	A*,D,E*,F,K,L,M,O*,Q,U,W
293.0	RN	Rhinns of Islay Lt.	Is of Islay	A*,B,C,F,G,H,S
294.0	PH	Cap d'Alprech	France	A*,B,D,E*,F,G,I,K,L,N,O,P,Q,R,T,U,W
294.5	BA	#Black Hd Lt	?	C*
294.5	FP	#Lynmouth F'land Lt	N.Devon	O*
294.5	PS	#Pt.Lynas Lt	Anglesey	O*,P,T
294.5	PT	#Souter Lt	Durham	B,O*
294.5	UK	Sunk Lt V	Off Essex	O*,U,V,W
295.5	CB	La Corbiere Lt	Jersey	A*,F,G,K,R,W
296.0	BH	Blavandshuk Lt	Denmark	B,C*,G,R,T
296.0	GR	Georee Lt	Holland	V,W
297.0	FG	Pt de Barfleur Lt	France	A*,E*,G,I,K,L,N,U,V,W
298.0	GX	Ille de Groix	France	F,U,W
298.5	RR	Round Is Lt	Is of Scilly	A*,B,C,F,G,K,L,O,P,S,T,V,W
299.0	AD	Ameland Lt	Holland	B,G,R,T,V,W
299.5	NP	Nash Pt Lt	S.Wales	A*,C,D,F,G,I,K,L,O*,P,R,S,U,W
299.5	SK	Skomvaer	Norway	V
299.5	VR	Utvaer Lt	Norway	B
300.0	MZ	Mizen Head	S.Ireland	A*,C*,F,I,K,W
300.0	TI	Cap d'Antifer Lt	N.France	A*,F,L,U,W
300.5	DU	Dungeness Lt	Kent	A*,B,D,E,G,I,L,N,O,P,Q,R,U,V,W
300.5	LA	Lista	Norway	B,F,L,T
301.0	CA	Pt de Creach	France	B,C*,F,G,K,T
301.0	ER	Eierland Lt	Holland	B
301.5	KD	Kinnards Hd Lt	NE.Scotland.	B,G,H,W
301.5	OB	Hoburg	Sweden	C*
302.0	RB	Cherbourg Ft W Lt	France	A*,D,E*,F,G,I,K,L,N,Q,T,U,W
302.5	FB	Flamborough Hd Lt	Yorkshire	B,C*,D,F,G,J,O,P,Q,R,T,U,V,W
303.0	D	Rota	SW.Spain	I
303.0	FV	Falsterborev Lt	Sweden	B,G,R,W
303.0	YE	Ile d'Yeu Main Lt	France	A*,B,C*,F,K,W
303.5	BJ	Bjornsund Lt	Norway	B
303.5	FN	Feistein Lt	Norway	B
303.5	IA	Llanes Lt	N.Spain	C*
303.5	VL	Vlieland Lt	Holland	G,I,V,W
304.0	PS	Pt Lynas Lt	Anglesey	A*,B,C,F,G,H,K,O,P,R,S,T,W
304.0	SB	Sumburgh Hd Lt	Shetland Is	B,J
304.5	BC	Roscoff Bloscon Lt.	France	K
304.5	GY	Castle Breakwater	Guernsey	C.I.W
304.5	MY	Cabo Mayer Lt	N.Spain	C*
305.0	FP	Fife Ness Lt	SE.Scotland	B,G,R,S
305.5	AL	Pt d'Ailly Lt	France	A*,D,F,G,I,K,L,N,O,P,Q,R,T,U,V,W
306.0	EC	Elizabeth Castle	Jersey	W
306.0	FN	Walney Is Lt	Off Lancs	B,C,G,H,O,P,R,S,T,W
306.5	GJ	Le Grand Jardin Lt.	France	W
306.5	UT	Utsira	Norway	B,G,R
306.5	MV	Morzhovskiy	SSR Artic	W
307.0	GL	Eagle Is Lt	Ireland	B,C*,G,H,S
308.0	RD	Roches Douvres Lt	France	B,D,F,G,K,L,N,Q,R,T,W
308.5	NZ	St Nazaire	France	W
309.5	BA	Punta Estaca Bares.	N.Spain	C*
309.5	MA	Marstein Lt	Norway	B,C*,G,R,W
310.0	ER	Pt de Ver Lt	N.France	A*,K,L,N,Q,W
310.5	SG	Sjaellands N Lt	Denmark	C*
311.0	GD	Girdle Ness Lt	NE.Scotland.	B,H,S
311.0	NF	N.Foreland Lt	Kent	D,G,I,N,O,Q,U,W
311.5	LP	Loop Hd Lt	S.Ireland	C*,F,G,S
312.0	OE	Oostende	Belgium	B,G,O,P,Q,R,T,V,W
312.5	CS	Calais Main Lt	France	B,G,Q,W
312.5	VS	Cabo Estay Lt	N.Spain	D,N,W
313.0	PB	Portland Bill Lt	Dorset	A*,D,F,K,L,N,W
313.0	TY	Tory Is Lt	N.Ireland	B,G,S
313.5	CM	Cromer Lt	Norfolk	B,D,G,O,P,Q,R,T,U,V,W
314.0	PQ	Porquerolles Lt	S.France	C*,F
314.0	VG	Ile Vierge Lt	France	F,K,T,W
319.0	LEC.	Stavanger	Norway	A,B,C,D,F,G,H,L,O,P,Q,R,S,T,U,V,W

Note: Entries marked # are calibration stations. Entries marked * were logged during darkness. All other entries were logged during daylight.

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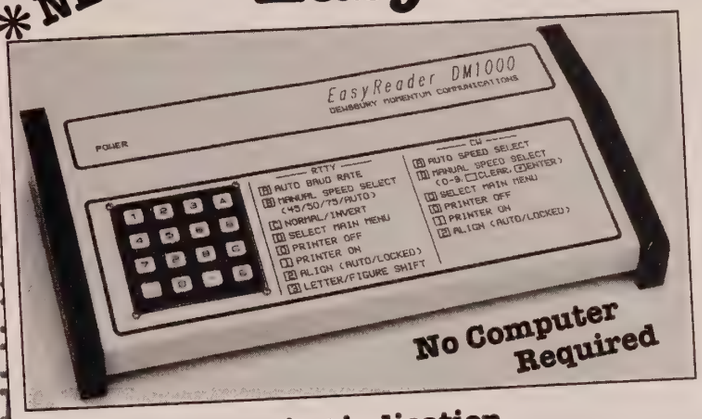

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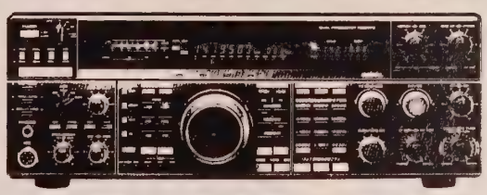

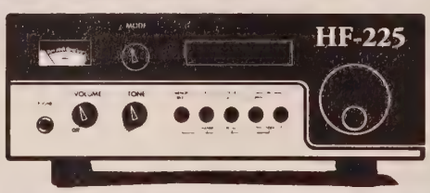

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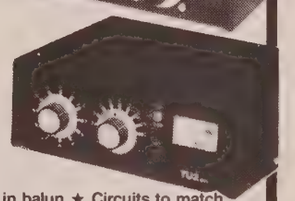

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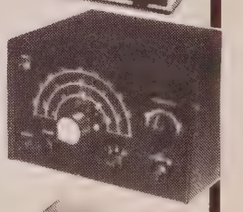

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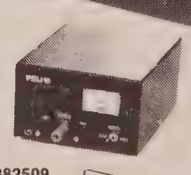

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The new listing includes ALL the new UHF allocations, airfields, ranges, LATCC, display, refuelling and others along with comprehensive coverage of the VHF airband as well.

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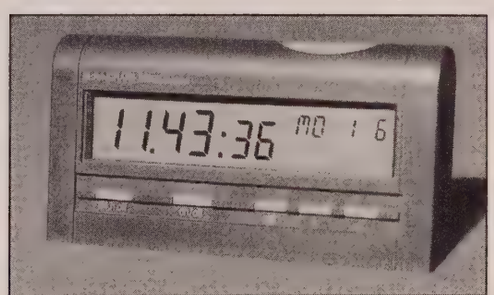

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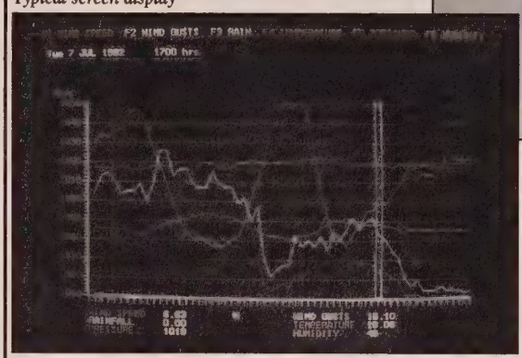

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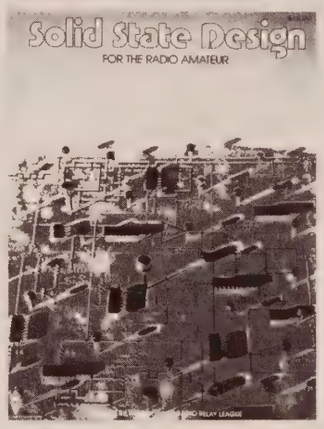

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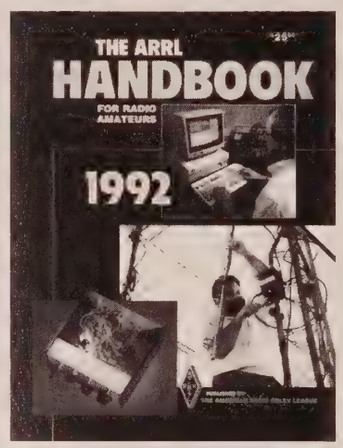

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More Trading Post on Page 82

60th Anniversary Diamond Jubilee Issue

DIAMOND JUBILEE 1932-1992

practical Wireless

DIAMOND JUBILEE 1932-1992

To celebrate 60 years of continuous publication, *Practical Wireless* is publishing a bumper-sized issue. Our Diamond Jubilee October issue takes a nostalgic look back over the last six decades, to see just how much the radio hobby has changed.

The founding editor of *PW* tended to be overshadowed by his aircraft designer brother Sydney. Sir Sydney Camm was honoured for his famous designs including the Hawker *Hurricane* and the *Harrier* jump-jet. As a fitting tribute, *Practical Wireless* takes the opportunity to redress the balance, by featuring the history of Fred Camm and his many achievements.

Read about the Three Shilling Valve Radio. *PW* looks back at a typical project from the 1930s, and how difficult and expensive it could be too!

Remember those 'magic eye' tuning indicators? Well, they're still available and you can still use one to advantage with our special dip-meter project this month.

Radio amateurs go to war. Radio enthusiasts took up important roles during the Second World War, and *PW* takes the opportunity to give credit where it's due to the many amateurs who used their technical knowledge and skills during the conflict.

A magazine is nothing without its readers, and *PW* regulars rallied to our calls for memories, whether they be from 15, 25 or even 60 years ago. So, you too can share our history, your memories and much more by reading the Diamond Jubilee issue of *Practical Wireless*, published on 10th September.

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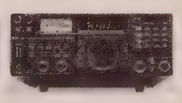

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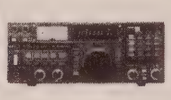

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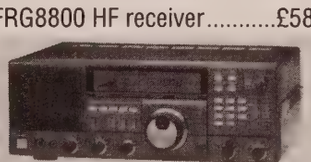

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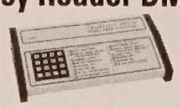

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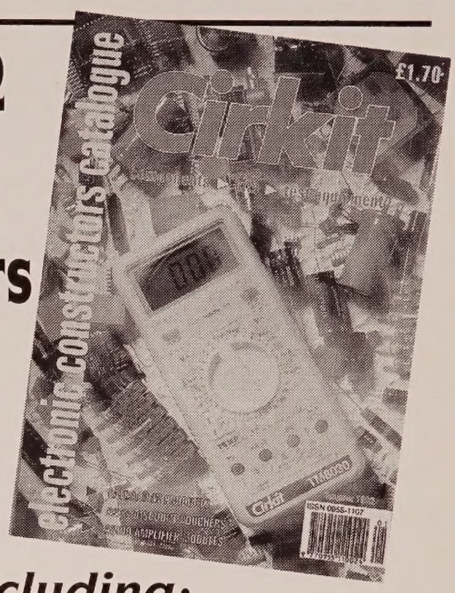

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- Optional TV/FM adaptor.
- 241(W)x94(H)x239(D)mm.

IC-R72 HF Receiver.

- Frequency coverage: 30kHz- 30MHz.
- High sensitivity.
- Advanced DDS system.
- 100dB dynamic range.
- 24-hour system clock with timer.
- Direct keypad entry.
- Preamplifier and attenuator.
- 99 memory channels.
- 241(W)x94(H)x239(D)mm.

Shown here are wideband and HF base-station receivers, designed to complement handheld and mobile receivers in the ICOM range. Remember, whatever your particular radio requirement the answer is ICOM, so good to receive.

For further information about ICOM products and the location of your nearest authorised dealer please contact:
Icom (UK) Ltd. Dept SW Sea Street Herne Bay Kent CT6 8LD
Telephone: 0227 741741 (24hr). Fax: 0227 741742

ICOM

HF RECEIVER TECHNOLOGY

INNOVATION DESIGN MANUFACTURE TECHNICAL SUPPORT

HF-150
Compact Communications Receiver

£329 inc VAT

Designed as a logical alternative to the Japanese 'push button portables', the HF-150 places a 'real radio' within your price reach. Whilst reflecting the Lowe approach to simplicity of operation, the HF-150 nevertheless has all the features and facilities you need. This truly is 'Real Radio'.

Frequency coverage: 30kHz - 30MHz
Modes: USB/LSB/AM/Sync. AM (Selectable S'band)
IF Bandwidths: 2.5kHz & 7kHz
Tuning: 8Hz steps with variable speed
Memories: 60 holding frequency & mode
Aerial inputs: 600 ohms, 50 ohms & Hi-Z Whip
Power: 12Vdc from mains adaptor (supplied)
Case: All-metal light alloy case
Size: 185mm(W) x 80mm(H) x 160mm(D)
Weight: 1.3kg (less batteries)

HF-235
The Professionals' Choice

£1116 inc VAT

Frequency coverage:30kHz - 30MHz
Modes: AM/LSB/USB/CW/NBFM (Sync AM optional)
Filters: 6 Input bandpass filters
Tuning steps: 8Hz - 125Hz (stepped by mode)
Construction: Fully floating chassis
Remote control: RS232C Computer interface (optional)
Memories: 30 holding a host of data
Tuning: Spin-wheel, keypad & MHz button freq. entry
Power supply: 110-120 or 220-240Vac 50Hz
Size: 483mm(W) x 88mm(H) x 320mm(D)

HF-225
Gateway to the World

£429 inc VAT

Frequencies: 30kHz - 30Mhz
Tuning: 8Hz steps.
Memories: 30 channels
Filters: IF filters for all modes fitted
Tuning: Keypad & spin-wheel
AM/FM Sync. Detector (optional)
Keypad for remote entry (optional)
Excellent quality at reasonable cost

LOWE ELECTRONICS LIMITED

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Barry (S Wales): 0446 721304 ***Bournemouth**: 0202 577760 **Bristol**: 0272 771770
Cambridge: 0223 311230 **Cumbernauld**: 0236 721004 **London (Heathrow)**: 0753 545255
London (Middlesex): 081-429 3256 **Newcastle Airport:** 0661 860418 **Closed on Monday*

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Personal Number: 100000